液晶显示器

底板　LHA20WS
型号　205BW

维 修 手 册

http://www.wjel.net

液晶显示器

时尚特点

-高级 HAS 应用（抬起 80mm）

-魔幻旋转应用

（自动旋转删除）

-内置电源、机器 S/W 应用

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1 Precautions

Follow these safety, servicing and ESD precautions to prevent damage and to protect against potential hazards such as electrical shock.

1-1 Safety Precautions

1-1-1 Warnings

1. For continued safety, do not attempt to modify the circuit board.
2. Disconnect the AC power and DC power jack before servicing.

1-1-2 Servicing the LCD Monitor

1. When servicing the LCD Monitor, Disconnect the AC line cord from the AC outlet.
2. It is essential that service technicians have an accurate voltage meter available at all times. Check the calibration of this meter periodically.

1-1-3 Fire and Shock Hazard

Before returning the monitor to the user, perform the following safety checks:

1. Inspect each lead dress to make certain that the leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the monitor.
2. Inspect all protective devices such as nonmetallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacitor networks, mechanical insulators, etc.
3. Leakage Current Hot Check (Figure 1-1):

   WARNING : Do not use an isolation transformer during this test.

   Use a leakage current tester or a metering system that complies with American National Standards Institute (*ANSI C101.1, Leakage Current for Appliances*), and Underwriters Laboratories (*UL Publication UL1410, 59.7*).

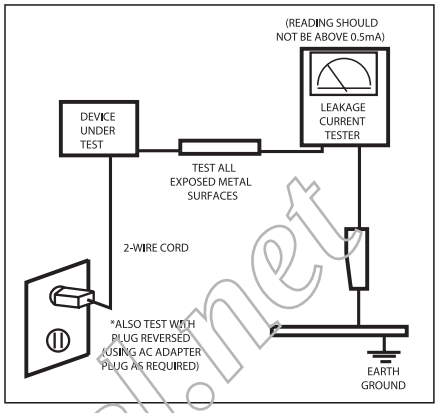

Figure 1-1 Leakage Current Test Circuit

4. With the unit completely reassembled, plug the AC line cord directly into a 120V AC outlet. With the unit's AC switch first in the ON position and then OFF, measure the current between a known earth ground (metal water pipe, conduit, etc.) and all exposed metal parts, including: metal cabinets, screwheads and control shafts. The current measured should not exceed 0.5 milliamp. Reverse the power-plug prongs in the AC outlet and repeat the test.

1-1-4 Product Safety Notices

Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection. The protection they give may not be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by ⚠ on schematics and parts lists. A substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire and/or other hazards. Product safety is under review continuously and new instructions are issued whenever appropriate.

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1-2 Servicing Precautions

WARNING: An electrolytic capacitor installed with the wrong polarity might explode.

Caution: Before servicing units covered by this service manual, read and follow the Safety Precautions section of this manual.

Note: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions, always follow the safety precautions.

1-2-1 General Servicing Precautions

1. Always unplug the unit's AC power cord from the AC power source and disconnect the DC Power Jack before attempting to:
   (a) remove or reinstall any component or assembly, (b) disconnect PCB plugs or connectors, (c) connect a test component in parallel with an electrolytic capacitor.
2. Some components are raised above the printed circuit board for safety. An insulation tube or tape is sometimes used. The internal wiring is sometimes clamped to prevent contact with thermally hot components. Reinstall all such elements to their original position.
3. After servicing, always check that the screws, components and wiring have been correctly reinstalled. Make sure that the area around the serviced part has not been damaged.
4. Check the insulation between the blades of the AC plug and accessible conductive parts (examples: metal panels, input terminals and earphone jacks).
5. Insulation Checking Procedure: Disconnect the power cord from the AC source and turn the power switch ON. Connect an insulation resistance meter (500 V) to the blades of the AC plug.

   The insulation resistance between each blade of the AC plug and accessible conductive parts (see above) should be greater than 1 megohm.
6. Always connect a test instrument's ground lead to the instrument chassis ground before connecting the positive lead; always remove the instrument's ground lead last.

1-3 Electrostatically Sensitive Devices (ESD) Precautions

Some semiconductor (solid state) devices can be easily damaged by static electricity. Such components are commonly called Electrostatically Sensitive Devices (ESD). Examples of typical ESD are integrated circuits and some field-effect transistors. The following techniques will reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground. Alternatively, wear a discharging wrist-strap device. To avoid a shock hazard, be sure to remove the wrist strap before applying power to the monitor.
2. After removing an ESD-equipped assembly, place it on a conductive surface such as aluminum foil to prevent accumulation of an electrostatic charge.
3. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESDs.
4. Use only a grounded-tip soldering iron to solder or desolder ESDs.
5. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ESDs.
6. Do not remove a replacement ESD from its protective package until you are ready to install it. Most replacement ESDs are packaged with leads that are electrically shorted together by conductive foam, aluminum foil or other conductive materials.
7. Immediately before removing the protective material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.

   Caution: Be sure no power is applied to the chassis or circuit and observe all other safety precautions.
8. Minimize body motions when handling unpackaged replacement ESDs. Motions such as brushing clothes together, or lifting your foot from a carpeted floor can generate enough static electricity to damage an ESD.

http://www.vieinet

1-4 Installation Precautions

1. For safety reasons, more than two people are required for carrying the product.

2. Keep the power cord away from any heat emitting devices, as a melted covering may cause fire or electric shock.

3. Do not place the product in areas with poor ventilation such as a bookshelf or closet. The increased internal temperature may cause fire.

4. Bend the external antenna cable when connecting it to the product. This is a measure to protect it from being exposed to moisture. Otherwise, it may cause a fire or electric shock.

5. Make sure to turn the power off and unplug the power cord from the outlet before repositioning the product. Also check the antenna cable or the external connectors if they are fully unplugged. Damage to the cord may cause fire or electric shock.

6. Keep the antenna far away from any high-voltage cables and install it firmly. Contact with the highvoltage cable or the antenna falling over may cause fire or electric shock.

7. When installing the product, leave enough space (10cm) between the product and the wall for ventilation purposes.
A rise in temperature within the product may cause fire.

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Memo

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14 参考信息

14-1 技术术语

-TFT-LCD
（薄膜晶体管液晶显示器）
ADC（模数变换器）
这是将模拟信号转换为数字信号的电路。

-PLL（锁相回路）
在进行模数变换时，设备使时钟同步 HSYNC 与视频时钟同步。

-变换器
向液晶显示屏灯供电的设备，该设备产生约 1,500~2,000V。

-SMPS（切换模式电源）
切换模式电源。该设计技术用于通过开/关逐步升高/降低输入供电。

-FRC（帧速控制器）
改变屏幕上一秒内显示的图像帧数的技术。
实际上，TFT-LCD 屏要求每秒 60 帧。
因此，需要该技术将输入图像转为 60 帧，与输入帧数无关。

-图像换算器
将不同的输入分辨率转换为其他分辨率（例如 640*480 转为 1024*768）的技术。

-自动配置（自动调节）
这是按下一键即将显示器调到最佳状态的算法。

-OSD（屏幕显示）
屏幕显示，客户可用该项轻松控制屏幕。

-图像锁定
该项系指在液晶显示器上进行“精细调节”，功能有“精细”和“粗糙”。

-精细
“精细”调节用于通过控制相差调节可见度。

-粗糙
通过用视频时钟和 PLL 时钟调谐，进行调节。

-DVI（数字视频接口）
该项为与显示技术无关的视频数据类型提供高速数字连接。该接口主要是为了在计算机和显示设备之间提供接口。

-L.V.D.S.（低压差分信令）
一种数字传输方法。可用于从主 PBA 传输到显示屏。

-DVI（数字视频接口）
该项为与显示技术无关的视频数据类型提供高速数字连接。该接口主要是为了在计算机和显示设备之间提供接口。

-T.M.D.S
（最小过渡差分信令）
一种数字传输方法。可用于从视频卡传输到主 PBA。

-DDC（显示数据通道）
该项是主机和相关设备之间的通信方法。
在计算机和显示器之间可即插即用。

-EDID
扩展显示识别数据 PC 可通过与 PC 和显示器通信的 DDC 线路将显示器信息识别为产品数据、产品名称、显示模式、系列号和信号源等等。

http://www.vgl.net

-点距

显示器上的图像由红色、绿色和蓝色点组成。点越近，分辨率越高。相同颜色的两点之间的距离被秒为“点距”。单位：mm

-竖直频率

每秒必须对屏幕重画几次，以便产生和显示供用户观看的图像。每秒重复频率被称为竖直频率和刷新速率。单位：Hz

例如：如果相同的光每秒重复 60 次，该项将被视为 60Hz.

-水平频率

水平扫描连接屏幕右边至左边的一行的时间被称为水平周期。水平周期的倒数被称为水平频率。单位：kHz

-隔行扫描和非隔行扫描方法

从上至下依次显示屏幕水平行被称为非隔行扫描方法，而依次显示奇数行然后显示偶数行被称为隔行扫描方法。非隔行扫描方法用于大多数显示器，以保证图像清晰。隔行扫描方法与电视中采用的相同。

-即插即用

该功能通过允许计算机和显示器自动交换信息来向用户提供最佳质量的屏幕画面。本显示器遵循即插即用功能的国际标准 VESA DDC。

-分辨率

用于构成屏幕图像的水平和竖直点数被称为“分辨率”。该数表示显示精度。因屏幕上可显示更多的图像信息，所以高分辨率适用于执行多项任务。

示例：如果分辨率为 1280×1024，系指屏幕是由 1280 个水平点（水平分辨率）和 1024 个竖线（竖直分辨率）构成的。

S-Video

“超级视频”的缩写。S-Video 允许多达 800 行的水平分辨率，可以播放优质图像。

-外部设备输入

外部设备输入指从录像机、摄录一体机和 DVD 放像机等电视广播之外的外部视频设备输入的视频。

-DVD

兼具 CD 和 LD 的优点，从而实现高分辨率/质量，使用户可以观看到更清晰的图像的一种数字磁盘技术。

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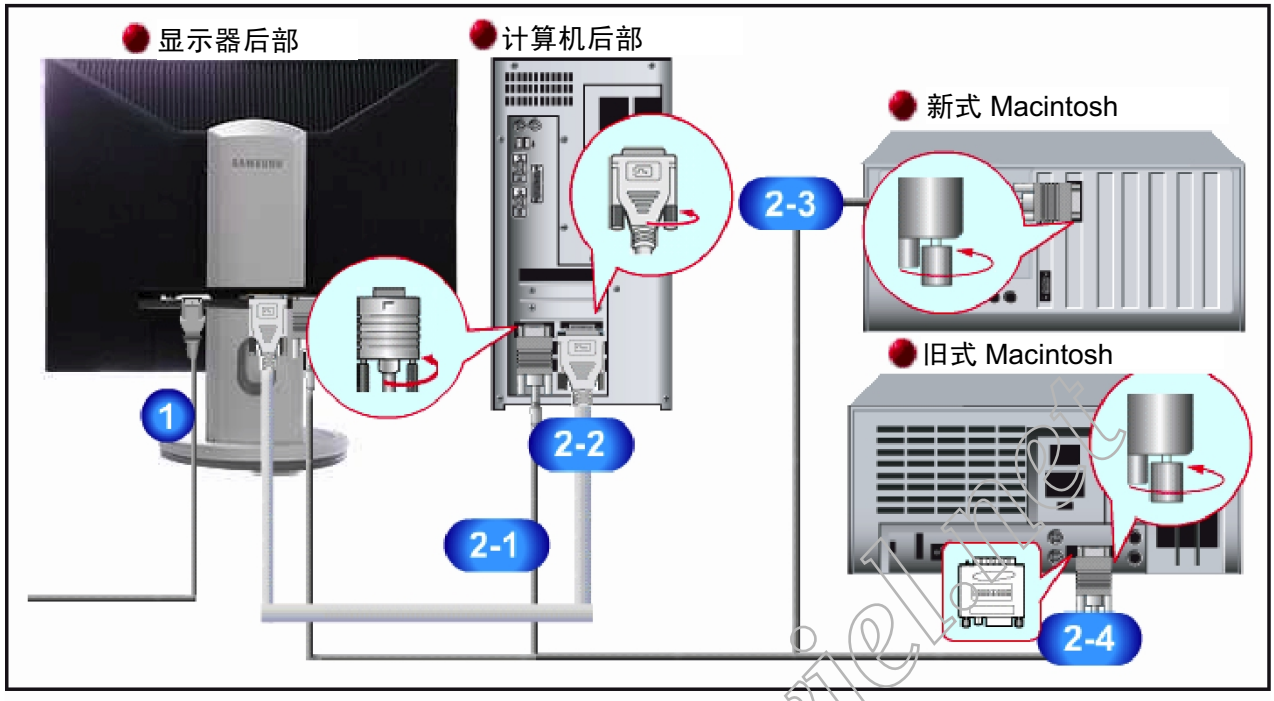
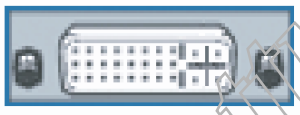
- 连接显示器



1. 将显示器的 DC 适配器接到显示器背面的电源端口上。将显示器的电源线插入旁边的插口上。

2-1. 使用视频卡上的 D-sub（模拟）连接器。
把信号电缆接到显示器背面的 15 针、D-sub 连接器上。

2-2. 使用视频卡上的 DVI（数字）连接器。
将 DVI 电缆接到显示器背面的 DVI 端口上。



2-3. 连接到 Macintosh 上。

使用 D-SUB 连接电缆将显示器接到 Macintosh 计算机上。

2-4. 如果是旧式 Macintosh，需要使用特殊 Mac 适配器连接显示器。

3. 打开计算机和显示器。如果显示器显示图像，则安装完成。

-如果同时将 D-Sub 和 DVI 电缆连接到一台计算机上，则可能显示空白屏幕，这取决于正在使用的视频卡类型。

-如果使用 DVI 连接器正确连接显示器，但出现空白屏幕，请检查显示器状态是否设为模拟。按下电源按钮，仔细检查显示器的输入信号源。

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14-2 管脚配置

同步类型 / 管脚编号	15 针 D-sub 信号电缆连接器		
	单独分开	复合	绿色同步
1	红色	红色	红色
2	绿色	绿色	绿色+水平/竖直同步
3	蓝色	蓝色	蓝色
4	GND	GND	GND
5	DDC 返回（GND）	DDC 返回（GND）	DDC 返回（GND）
6	GND 红色	GND 红色	GND 红色
7	GND 绿色	GND 绿色	GND 绿色
8	GND 蓝色	GND 蓝色	GND 蓝色
9	DDC 电源输入（+5V）	DDC 电源输入（+5V）	DDC 电源输入（+5V）
10	自动光栅	自动光栅	自动光栅
11	GND	GND	GND
12	Bi-Dr 数据（SDA）	Bi-Dr 数据（SDA）	Bi-Dr 数据（SDA）
13	水平同步	水平/竖直同步	未用
14	竖直同步	未用	未用
15	DDC 时钟（SCL）	DDC 时钟（SCL）	DDC 时钟（SCL）

同步类型 / 管脚编号	24 针 DVI-D		
1	Rx2-	13	未连接
2	Rx2+	14	+5V_M
3	GND	15	自动光栅
4	未连接	16	+5V_M
5	未连接	17	Rx0-
6	DDC 时钟（SCL）	18	Rx0+
7	DDC 数据（SDA）	19	NC
8	NC	20	未连接
9	Rx1-	21	未连接
10	Rx2+	22	NC
11	NC	23	RxC+
12	未连接	24	RxC-

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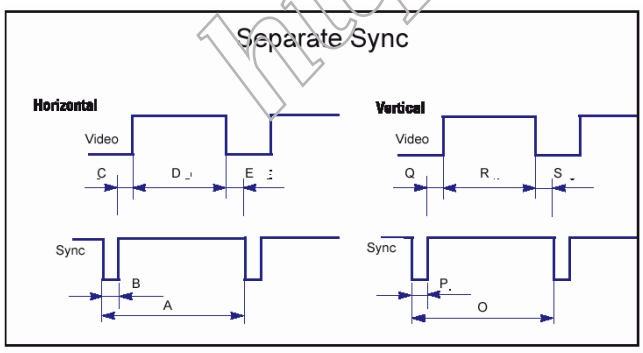
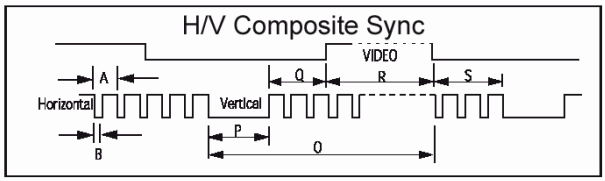
14-3 同步图

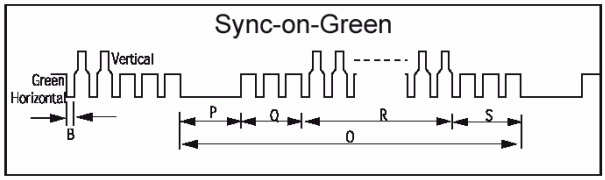
-维修手册中本章叙述计算机行业公认为计算机生成的视频信号标准的同步情况。

表 14-1 同步图

模式 / 同步	IBM		VESA						
	VGA2/ 70 Hz 720 x 400	VGA3/ 60 Hz 640 x 480	640/75 Hz 640x480	800/60 Hz 800x600	800/75 Hz 800x600	1024/60 Hz 1024x768	1024/75 Hz 1024x768	1280/60 Hz 1280x1024	1280/75 Hz 1280x1024
fH (kHz)	31.469	31.469	37.500	37.879	46.875	48.363	60.023	63.981	79.975
A微秒	31.777	31.778	26.667	26.400	21.333	20.677	16.660	11.852	12.504
B微秒	3.813	3.813	2.032	3.200	1.616	2.092	1.219	1.037	1.067
C微秒	1.589	1.589	3.810	2.200	3.232	2.462	2.235	2.296	1.837
D微秒	26.058	26.058	20.317	20.000	16.162	15.754	13.003	9.259	9.481
E微秒	0.318	0.318	0.508	0.000	0.323	0.369	0.203	0.000	0.119
fV (Hz)	70.087	59.940	75.000	60.317	75.000	60.004	75.029	60.020	75.025
O 毫秒	14.268	16.683	13.333	16.579	13.333	16.666	13.328	16.005	13.329
P 毫秒	0.064	0.064	0.080	0.106	0.064	0.124	0.050	0.047	0.038
Q 毫秒	0.858	0.794	0.427	0.607	0.448	0.600	0.466	0.594	0.475
R 毫秒	13.155	15.761	12.800	15.840	12.800	15.880	12.795	15.630	12.804
S 毫秒	0.191	0.064	0.027	0.0261	0.021	0.062	0.017	0.016	0.013
时钟频率 (MHz)	28.322	26.175	31.500	40.000	49.500	75.000	78.750	108.000	135.000
极性									
水平同步	负	负	负	正	正	负	正	正	正
竖直同步	正	负	负	正	正	负	正	正	正
备注	独立	独立	独立	独立	独立	独立	独立	独立	独立







A：总行时	B：水平同步宽度	O：总帧时	P：竖直同步宽度
C：后沿	D：有效时间	Q：后沿	R：有效时间
E：前沿		S：前沿	

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14-4 预设同步模式

-如果从计算机传输的信号与下列预设同步模式相同，则自动调节屏幕。但是，如果信号有所不同，当电源 LED 指示灯亮时，屏幕可能空白。参照视频卡手册，并如下所述调节屏幕。

表 1.预设同步

显示模式	水平频率（kHz）	竖直频率（Hz）	像素时钟（MHz）	同步极性(水平/竖直）
MAC, 640 x 480	35.000	66.667	30.240	-/-
MAC, 832 x 624	49.726	74.551	57.284	-/-
IBM, 640 x 350	31.469	70.086	25.175	+/-
IBM, 640 x 480	31.469	59.940	25.175	-/-
IBM, 720 x 400	31.469	70.087	28.322	-/+
VESA, 640 x 480	37.500	75.000	31.500	-/-
VESA, 640 x 480	37.861	72.809	31.500	-/-
VESA, 800 x 600	35.156	56.250	36.000	+,-/+,-
VESA, 800 x 600	37.879	60.317	40.000	+/+
VESA, 800 x 600	46.875	75.000	49.500	+/+
VESA, 800 x 600	48.077	72.188	50.000	+/+
VESA, 1024 x 768	48.363	60.004	65.000	-/-
VESA, 1024 x 768	56.476	70.069	75.000	-/-
VESA, 1024 x 768	60.023	75.029	78.750	+/+
VESA, 1280 x 1024	63.981	60.020	108.00	+/+
VESA, 1280 x 1024	79,976	75,025	135,00	+/+
VESA, 1600 x 1200	75.000	60.000	162.00	+/+

水平频率
水平扫描连接屏幕右边至左边的一行的时间被称为水平周期。水平周期的倒数被称为水平频率。单位：kHz

竖直频率
与荧光灯一样，为了向用户显示图像，屏幕必须每秒多次重复相同的图像。重复的频率被称为竖直频率或刷新速率。单位：Hz

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14-5 屏面说明

制造商	供货商P/N	屏面代码	屏面ABE	标签代码	备注
SEC	LT140X1-002	BN07-00004A	SA	BN68-00239H	-
SEC	LT150XS-L01	BN07-00009A	SB		-
SEC	LT150XS-L01-B	BN07-00022A	SC		-
SEC	LTM150XS-L02	BN07-00005A	SD		-
SEC	LT181E2-132	BN07-00001A	SE		-
SEC	LT150XS-T01	BN07-00010A	SF		-
SEC	LTM181E3-132	BN07-00019A	SG		-
SEC	LT170E2-131	BN07-10001D	SH		-
SEC	LT181E2-131	BN07-10001E	SJ		-
SEC	LTM170E4-L01	BN07-00018A	SK		-
SEC	LTM240W1-L01	BN07-00015A	SL		-
SEC	LTM213U3-L01	BN07-00016A	SM		-
SEC	LTM150XH-L01	BN07-00026A	SN		
SEC	LTM150XH-L03	BN07-00027A	SP		-
SEC	LTM150XS-L01	BN07-00032A	SQ		DELL(ZPD)
SEC	LTM181E4-L01	BN07-00034A	SR		PVA
SEC	LTM170EH-L01	BN07-00036A	SS		TN
SEC	LTM170E5-L01	BN07-00037A	SU		PVA
SEC	LTM150XH-L11	BN07-00041A	SV		-
SEC	LTM213U4-L01	BN07-00039A	SW		PVA
SEC	LTM150XH-L01(ZPD)	BN07-00045A	SX		ZPD
SEC	LTM150XH-L04	BN07-00046A	SY		New panel with high brightness
SEC	LTM170W1-L01	BN07-00047A	SZ		Panel for TV
SEC	LTM150XH-L06	BN07-00053A	EA		Panel for TV/ High luminance for 450cd _ SONY&EOS Team Panel for TV
SEC	LTM153W1-L01	BN07-00054A	EB		Use NIKE MODEL
SEC	LTM170EH-L05	BN07-00055A	EC		Panel EOS proj. for high brightness of 17" EH-L05
SEC	LTM170E5-L03	BN07-00056A	ED		Dell 1702FP pro. E4. EH mechanical Compatible
SEC	LTM190E1-L01	BN07-00057A	EE		DELL 1900 FP
SEC	LTM181E5-L01	BN07-00061A	EF		18" narrow bezel CH18PS
SEC	LTM150XP-L01	BN07-00065A	EG		AMLCD PVA PANEL
SEC	LTM240W1-L02	BN07-00062A	EH		Panel for 15" Wide TV
SEC	LTM170EU-L01	BN07-00071A	EJ		Slim design TN
SEC	LTM170E5-L04	BN07-00072A	EK		E5-L04 6 bits FRC... for IBM
SEC	LTA220W1-L01	BN07-00074A	EL		Panel for 22" TV
SEC	LTM170E6-L02	BN07-00075A	EM		AMLCD Narrow & slim design 17" PVA mode
SEC	LTM170W1-L01	BN07-00082A	EN		LTM170W1-L01 ZPD panel
SEC	LTM170EH-L01	BN07-00080A	EP		LTM170EH-L01 ZPD panel
SEC	LTM170E5-L01	BN07-00081A	EQ		LTM170E5-L01 ZPD panel
SEC	LTM170EH-L05	BN07-00083A	ER		LTM170EH-L05 ZPD panel
SEC	LTM170E5-L03	BN07-00084A	ES		LTM170E5-L03 ZPD panel
SEC	LTM170EU-L01	BN07-00085A	ET		LTM170EU-L01 ZPD panel
SEC	LTM170E5-L04	BN07-00086A	EU		LTM170E5-L04 ZPD panel
SEC	LTM170E6-L02	BN07-00087A	EV		LTM170E6-L02 ZPD panel
SEC	LTM150XH-L06	BN07-00091A	EW		Color coordinates change for LCD TV
SEC	LTM153W1-L01	BN07-00092A	EX		AMLCD WIDE 15",9/10
SEC	LTM170W1-L01	BN07-00100A	EY		Color Coordinates change code management
SEC	LTM170EH-L05	BN07-00097A	EZ		LTM170E5-L05 Color Coordinates Change Panel Code
SEC	LTA400W1-L01	BN07-00109A	S1		PANEL of AMLCD 40" TV
SEC	LTM153W1-L01	BN07-00110A	S2		Color coordinates change 0.280/0.290, 10000k & ZPD Panel
SEC	LTM150XH-L06	BN07-00111A	S3		Color coordinates change 0.280/0.290, 10000k & ZPD Panel
SEC	LTM170W1-L01	BN07-00112A	S4		Color coordinates change 0.280/0.290, 10000k & ZPD Panel
SEC	LTM170EH-L05	BN07-00113A	S5		Color coordinates change 0.280/0.290, 10000k & ZPD Panel
SEC	LTM220W1-L01	BN07-00114A	S6		ZPD Panel for AMLCD 22" TV
SEC	LTM150XH-L06	BN07-00117A	S7		ZPD Panel code
SEC	LTM153W1-L01	BN07-00118A	S8		ZPD Panel code
SEC	LTM170WP-L01	BN07-00119A	S9		PVA Panel for NIKE
SEC	LTM213U4-L01	BN07-00039A	E1		21.3" NARROW
SEC	LTA260W1-L01	BN07-00121A	E2		VENUS
SEC	LTA220W1-L01	BN07-00074B	E3		"Panel B-level panel code for 22"" TV Panel "
SEC	LTA320W1-L01	BN07-00108A	E4		"Panel for AMLCD 32"" TV"
SEC	LTM213U4-L01	BN07-00124A	E5		NARROW BEZEL 21 " PANEL
SEC	LTM170E6-L04	BN07-00129A	E6		"HIGHLAND 17"" LOW PANEL (Panel only for TCO03)"
SEC	LTM190E1-L01	BN07-00088A	E7		LTM190E1-L01 ZPD panel
SEC	M150X4-L06	BN07-00137A	E8		15" Narrow & Slim panel
SEC	LTA170V1	BN07-00139A	E9		"17"" Panel for Muse 4:3 VGA TV"
SEC	LTM190E1-L02	BN07-00128A	E10		"New Panel from AMLCDI, Specification : 6bit Driver IC"
SEC	LTM170EX-L01	BN07-00143A	E11		"Development new Panel from AMLCD"
SEC	LTM170E8-L01	BN07-00144A	E12		"Development new Panel from AMLCD"
SEC	LTM170E6-L04	BN07-00129B	E13		"ZPD panel for AMLCD (Panel only for TCO03)"
SEC	LTA320W1-L02	BN07-00108B	E14		"Creat B-level Panel code for AMLCD 32"" TV"
SEC	LTM190E1-L03	BN07-00151A	E15		"Development new 19"" Panel form AMLCD (Panel only for TCO03)"
SEC	LTM240W1-L03	BN07-00134A	E16		"AMLCD 24"" panel development"
SEC	LTM190E1-L02	BN07-00128B	E17		"New Panel from AMLCD, Specification : 6bit Driver IC(ZPD)"
SEC	LTM190E4-L01	BN07-00145A	E18		"AMLCD 24"" new panel development"
SEC	LTM170E8-L01	BN07-00158A	E19		"ZPD code derivation"
SEC	LTM170EX-L01	BN07-00159A	E20		"ZPD code derivation"
SEC	LTM190E1-L03	BN07-00151B	E21		"Creat new panel code for AMLCD 19"" (Panel only for TCO03)"

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制造商	供货商P/N	屏面代码	屏面ABE	标签代码	备注
SEC	LTA460H1-L01	BN07-00157A	E22		"creat panel code for AMLCD 46"" TV "
SEC	LTM170EU-L11	BN07-00160A	E23		"creat new panel code for AMLCD 17"" (Panel only for TCO03)"
SEC	LTM240W1-L03	BN07-00134B	E24		"24"" panel ZPD code derivation"
SEC	LTM190E4-L01	BN07-00145B	E25		"AMLCD 19"" ZPD Panel code derivation"
SEC	LTM240W1-L03	BN07-00134B	E26		"24"" panel ZPD code derivation"
SEC	LTM150XO-L01	BN07-00164A	E27		"AMLCD 15"" XO-L01 new panel development"
SEC	LTM150XO-L01	BN07-00164B	E28		"AMLCD 15"" XO-L01 ZPD code derivation"
SEC	LTM170EU-L11	BN07-00160B	E29		"AMLCD 17"" NEW panel code derivation"
SEC	LTA320W2-L01	BN07-00172A	SPZ		AMLCD 32" NEW panel
SEC	LTM213U4-L01	BN07-00124B	SPZ		21.3" Narrow PANEL ZPD Panel derivation
SEC	LTM170EU-L11	BN07-00189A	STH		AMLCD EU-L11 Pb free panel code derivation
SEC	LTM170EU-L11	BN07-00189B	STZ		AMLCD EU-L11 Pb free panel ZPD code derivation
SEC	LTM240W1-L04	BN07-00188A	SPH		24" A-DCC new panel development
SEC	LTM240W1-L04	BN07-00188B	SPZ		24" A-DCC panel ZPD code derivation
SEC	LTM190EX-L01	BN07-00191A	STH		AMLCD 19" TN new Panel
SEC	LTM190EX-L02	BN07-00191B	STZ		AMLCD 19" TN new Panel ZPD derivation
SEC	LTA230W1-L02	BN07-00184A	SPZ		AMLCD 23" 16:9 new Panel
SEC	LTA260W2-L01	BN07-00185A	SPZ		AMLCD 26" 16:9 new Panel
SEC	LTM240M1-L01	BN07-00195A	SPH		24" panel with high brightness deveiopment
SEC	LTA400W2-L01	BN07-00186A	SPZ		AMLCD 40" 16:9 new Panel
SEC	LTM150XO-L01	BN07-00197A	STH		AMLCD 15" XO-L01 Pb free panel code
SEC	LTM150XO-L01	BN07-00197B	STZ		AMLCD 15" XO-L01 Pb free panel ZPD code
SEC	LTM170EU-L21	BN07-00202A	STZ		AMLCD EU-L21 ZPD new code derivation
SEC	LTA460W2-L03	BN07-00187A	SPZ		BEETOVEN 46"ZPD new panel
SEC	LTM240M1-L01	BN07-00195B	SPZ		24" igh brightness panel ZPD code derivation
SEC	M170EX-L21	BN07-00206A	STZ		AMLCD LTM170EX-L21 ZPD new code derivation
SEC	LTA460H3-L01	BN07-00200A	SPZ		AMLCD 46" LED BLU panel
SEC	LTM170EU-L15	BN07-00214A	STZ		AMLCD EU-L15 TV high brightness ZPD new code derivation
SEC	LTM170E8-L21	BN07-00218A	SPZ		AMLCD LTM170E8-L21 PVA ZPD new code derivation
SEC	LTM190EX-L21	BN07-00222A	STZ		DISPLAY LCD
SEC	LTM201U1-L01	BN07-00190B	SPZ		AMLCD 20.1" Normal panel ZPD code derivation
SEC	LTM190E4-L21	BN07-00223A	SPZ		HAYDN 17" PZD code PANEL derivation
SEC	LTA570H1-L01	BN07-00196A	SPZ		AMLCD 57" new panel development
SEC	LTM150XO-L21	BN07-00229A	STZ		AMLCD 15" XO-L21 8ms panel code
SEC	LTA260W2-L11	BN07-00239A	SPZ		AMLCD 26" 16:9 7Line new Panel
SEC	LTA400WS-LH1	BN07-00245A	SPZ		AMLCD 40" 16:9 SPVA 90% new Panel
SEC	LTM213U6-L01	BN07-00231A	SPZ		AMLCD 21.3" PVA new Panel Code
SEC	LTA320WS-LH2	BN07-00244A	SPZ		AMLCD 32" 16:9 SPVA 90% new Panel
SEC	LTA400WS-LH1	BN07-00245A	SPZ		AMLCD 40" 16:9 SPVA 90% new Panel
CPT	CLAA150XG09	BN07-00141A	PA		"CPT 15"" Monitor new panel development"
CPT	CLAA170EA02	BN07-00148A	PB		"17"" CPT NEW development panel"
CPT	CLAA170EA02	BN07-00148B	PC		"17"" CPT ZPD panel code derivation"
CPT	CLAA150XG09	BN07-00141B	PTZ		"CPT 15"" panel ZPD code derivation (GOYA-PJT)"
CPT	CLAA150XP01	BN07-00173A	PTH		CPT 15" PSWG code derivation
CPT	CLAA150XP01	BN07-00173B	PTZ		CPT 15" PSWG panel ZPD code
CPT	CLAA170EA07	BN07-00174A	PTH		"CPT 17"" PSWG panel code derivation
CPT	CLAA170EA07	BN07-00174B	PTZ		CPT 17"""" PSWG type new Panel code""""
CPT	CLAA170EA07	BN07-00174B	PTZ		CPT 17" PSWG type new Panel code
CPT	CLAA170EA07Q	BN07-00220A	PTZ		CPT 17" PSWG R/T 8msec code derivation
CPT	CLAA170EA07Q	BN07-00220B	PTH		CPT 17" PSWG R/T 8msec HPD code derivation
CPT	CLAA150XP01F	BN07-00236A	PTZ		CPT 15" PSWG panel ZPD & Lead free code derivation
TOSHIBA	LTM15C419(A)	BN07-00002A	TA		-
TOSHIBA	LTM15C423(B)	BN07-00006A	TB		-
TOSHIBA	LTM18C161	BN07-00008A	TC		-
TOSHIBA	LTM15C443	BN07-00031A	TD		-
TOSHIBA	LTM15C458	BN07-00043A	TE		-
TOSHIBA	LTM15C458S	BN07-00077A	TF		"TSB 15"" high brightness Panel"
TOSHIBA	LTM15C458	BN07-00078A	TG		Toshiba ZPD panel
TOSHIBA	LTM15C458S	BN07-00099A	TH		TSB LTM15C458S (ZPD)
HANNSTAR	HSD150MX41A(A)	BN07-00020A	NA		"TTL type"
HANNSTAR	HSD150MX12	BN07-00030A	NB		"TTL type"
HANNSTAR	HSD170ME13	BN07-00180A	NTH		Hannstar 17" TN new panel development
HANNSTAR	HSD170ME13	BN07-00180B	NTZ		Hannstar 17" TN new panel development ZPD code derivation
HANNSTAR	HSD190ME12	BN07-00210A	NTZ		Hannstar 19" TN new panel development
HANNSTAR	HSD150MX17-A	BN07-00226A	NTZ		Hannstar 15" slim panel ZPD code derivation
TORISAN	TM150XG-22L03(A)	BN07-00021A	RA		-
TORISAN	TM150XG-26L06	BN07-00042A	RB		-
TORISAN	TM181SX-76N01	BN07-00048A	RC		-
TORISAN	TM150XG-26L06	BN07-00059A	RD		15" XGA TN MODE(ZPD)
TORISAN	TM290WX-71N31	BN07-00063A	RE		"RS24NS (TORISAN 29"" NEW PANEL)"
TORISAN	TM396WX-71N31	BN07-00064A	RF		"RS24NS (TORISAN 40"" NEW PANEL)"
TORISAN	TM150XG-26L09	BN07-00073A	RG		"Panel for 15"" TV"
TORISAN	TM150XG-26L10	BN07-00089A	RH		"L10(change except D/IC) ZPD"
TORISAN	TM150XG-26L10	BN07-00090A	RJ		L10 NORMAL
TORISAN	TM190SX-70N01	BN07-00098A	RK		Torisan 19" Panel
TORISAN	TM181SX-76N01	BN07-00106A	RL		ZPD Panel code
TORISAN	TM190SX-70N01	BN07-00107A	RM		ZPD Panel code

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制造商	供货商P/N	屏面代码	屏面ABE	标签代码	备注
TORISAN	TM290WX-71N31	BN07-00115A	RN		"Color Coordinates change panel for TORISAN 29"" TV"
TORISAN	TM396WX-71N31	BN07-00116A	RP,Q		"Color Coordinates change panel for TORISAN 40"" TV"
TORISAN	TM22OWX-71N31	BN07-00125A	RR		"Development TORISAN 22"" TV PANEL (ZPD)"
TORISAN	TM22OWX-71N31	BN07-00127A	RS		"Development TORISAN 22"" TV PANEL (HPD)"
TORISAN	TM396WX-71N32A	BN07-00150A	RT		120V inverter Exclusive panel
TORISAN	TM190SX-70N02	BN07-00154A	RMH		Torisan 6bit panel code Derivation
TORISAN	TM190SX-70N02	BN07-00154B	RMZ		Torisan 6bit panel code Derivation
TORISAN	TM150XG-A01	BN07-00162A	RTH		Torisan 15" Narrow & Slim panel development
TORISAN	TM150XG-A01	BN07-00162B	RTZ		Torisan 15" N&S panel ZPD code Derivation
SHARP	LQ181E1DG11(A)	BN07-10001C	PA		-
SHARP	LQ150X1LW71	BN07-00067A	PB		SHARP 15" PVA PANEL
SHARP	LQ370T3LZ41	BN07-00216A	FAZ		Rome2
HITACHI	TX38D12VC0CAA(A)	BN07-00003A	HA		-
HITACHI	TX43DVCOCAB	BN07-00060A	HB		17" SXGA PVA MODE
HITACHI	TX43D15VC0CAB	BN07-00101A	HC		ZPD Panel
HITACHI	TX51D11VC0CAB	BN07-00122A	HD		20.1" NARROW
HITACHI	TX54D11VC0CAB	BN07-00123A	HE		21.3" NARROW
HITACHI	TX80D12VC0CAB	BN07-00169A	HIZ		"Development new panel for Hitachi 32"" TV (ZPD)"
HITACHI	TX54D11VC0CAB	BN07-00123B	HIZ		Hitachi 21.3"ZPD panel
IBM	ITSX94S	BN07-00017A	IA		-
UNIPAC	UM170E0	BN07-00028A	UA		Loaded by cisdba
HYUNDAI	HT15X13	BN07-00035A	DA		-
HYUNDAI	HT17E11-200	BN07-00049A	DB		TN MODE
HYUNDAI	HT17E11-300	BN07-00093A	DC		HT17E11-300 ZPD panel
HYUNDAI	HT17E11-400	BN07-00094A	DD		HT17E11-400 normal panel
HYUNDAI	HT17E11-400	BN07-00095A	DE		HT17E11-400 ZPD panel code
HYUNDAI	HT17E12	BN07-00096A	DF		HT17E12 (Narow & slim Design)
HYUNDAI	HT17E12	BN07-00105A	DG		ZPD Panel code
HYUNDAI	HT15X15-D00	BN07-00146A	DH		"Development for Ares 15"" Hydis TV"
HYUNDAI	HT15X15-D01	BN07-00146B	DJ		"Derivation panel HPD for Ares 15"" Hydis TV "
HYUNDAI	HT17E13-100	BN07-00167A	DTH		"PINEHURST-2(IBM) PJT 17"" HYDIS PANEL Derivation"
HYUNDAI	HT17E13-100	BN07-00167B	DTZ		"PINEHURST-2(IBM) Hydis 17"" ZPD code Derivation"
ACER	L170E3	BN07-00044A	AA		TN(ADT)
ACER	M170EN05	BN07-00076A	AB		AU 17" Panel (Narrow & slim design)
ACER	M170EN05	BN07-00102A	AC		ZPD Panel code
ACER	M190EN02	BN07-00170A	AMH		"AU Monitor 19"" new panel development (P19-1S)"
ACER	M190EN02	BN07-00170B	AMZ		"AU 19"" ZPD code derivation (ZPD)"
ACER	M170EN06	BN07-00171A	ATH		"AU Monitor 17"" New panel development "
ACER	T260XW01	BN07-00163A	AMZ		"AU 26"" new panel development (NF26EO)"
ACER	A201SN01	BN07-00177A	ATZ		"AU TV panel 20.1"" TN SVGA new panel development"
ACER	M170EN06	BN07-00171B	ATZ		AU Monitor 17" ZPD code derivation
ACER	T315XW01	BN07-00194A	AMZ		AU 32" new
ACER	M170EG01	BN07-00192A	ATH		AU TN PSWG type new Panel code
ACER	M170EG01	BN07-00192B	ATZ		AU TN PSWG type NEW panel code derivation
ACER	M190EN04	BN07-00203A	ATH		AU Monitor 19" ZPD new Panel code
ACER	T260XW02	BN07-00208A	AMZ		AUO 26" ZPD panel
ACER	M170EG01 V8	BN07-00221A	ATZ		AU TN PSWG type new Panel (8msec) ZPD code derivation
ACER	T260XW02	BN07-00233A	AMZ		AUO 26" Panel new (Cosmetic spec down grade)
ACER	T315XW01	BN07-00234A	AMZ		AUO 32" Grade new (Cosmetic spec down grade)
ACER	M190EN03	BN07-00224A	AMZ		AU Monitor 19" MVA new code derivation
ACER	T315XW01	BN07-00237A	AMZ		LCD TV VE project new
ACER	T315XW01	BN07-00238A	AMZ		LCD TV VE project new
ACER	M201UN02 V3	BN07-00168A	AMZ		
CHIMEI	M170E3-LO1	BN07-00050A	CA		TN PANEL
CHIMEI	M150X3-L01	BN07-00051A	CB		COMPATIBLE
CHIMEI	M170E4-L01	BN07-00052A	CC		MVA PANEL
CHIMEI	M150X2-L01	BN07-00066A	CD		CHIME 15"I PVA PANEL
CHIMEI	M150X3-L01	BN07-00079A	CE		Chimei ZPD panel
CHIMEI	M170E3-L01	BN07-00103A	CF		ZPD Panel code
CHIMEI	M170E4-L01	BN07-00104A	CG		ZPD Panel code
CHIMEI	V296W1-L01	BN07-00120A	CH		MVA
CHIMEI	M170E6-L02	BN07-00126A	CJ		HIGHLAND 17" LOW PANEL
CHIMEI	M190E2-L01	BN07-00131A	CK		GH19AS,BS CHIMEI PANEL
CHIMEI	M150X4-L06	BN07-00137A	CL		15" Narrow & Slim panel
CHIMEI	M170E6-L01	BN07-00133A	CM		"2003-03-11 vendor change"
CHIMEI	M170E6-L01	BN07-00133B	CN		ZPD derivation panel
CHIMEI	V201V1-T01	BN07-00135A	CP		CHIMEI 20.1" panel development
CHIMEI	M170E6-L02	BN07-00126B	CQ		"HIGHLAND 17"" LOW PANEL ZPD derivation panel"
CHIMEI	M170E6-L05	BN07-00152A	CR		"CMO 17"" new panel development code"
CHIMEI	M170E6-L05	BN07-00152B	CS		"CMO 17"" ZPD panel code derivation"
CHIMEI	M150X4-L06	BN07-00137B	CT		Chimei 15" Narrow & Slim panel ZPD derivation
CHIMEI	M170E5-L05	BN07-00165A	CTH		CMO 17" new panel development code (GOYA2-PJT)
CHIMEI	M170E5-L05	BN07-00165B	CTZ		CMO 17" ZPD panel(GOYA2-PJT)
CHIMEI	V230W1-L02	BN07-00209A	CMZ		CMO 23" development
CHIMEI	V320B1-L01	BN07-00207A	CMZ		CMO 32" development
CHIMEI	V270W1-L01	BN07-00136A	CMZ		CHI MEI 27" panel development
NEC	SVA150XG04TB	BN07-00225A	BTZ		SVA NEC 15" panel ZPD code

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备忘录

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2 产品规格

2-1 时尚特点

-高级 HAS 应用（抬起 80mm）
-魔幻旋转应用（自动旋转删除）
-内置电源、机器 S/W 应用

2-2 规格

项目	说明
液晶显示屏	薄膜晶体管液晶显示屏、RGB 竖条纹、正常黑色传输、20 英寸可视，0.258（水平）X 0.258（竖直）mm 像素点距
扫描频率	水平：31 kHz~80 kHz（自动） 竖直：56 Hz~75 Hz （WSXGA+：60Hz）
显示颜色	16.7M 种颜色
最大分辨率	水平：1680 像素 竖直：1050 像素
输入信号	模拟/数字
输入同步信号	单独分开的H/V同步，复合H/V，绿色同步，无需外部切换同步类型，自动同步 电平：TTL 电平
最大像素时钟率	162 MHz（模拟/显示）
有效显示 水平/竖直	408（水平）×306（宽）mm
交流电源电压和频率	AC 100~240 伏，60/50 Hz± 3Hz
功耗	70W（模拟/数字）
尺寸 本机（宽×深×高） 仅机头（宽×深×高） 高度调节范围 旋转角 回转角 倾斜角	 471.4 x 200 x 341.8 mm（18.5 x 7.9 x 13.9英寸） 471.4 x 69.5 x 307.9 mm（18.5 x 2.7 x 12.1英寸） 80mm（仅限于在通常状态下！） 90 度 0~350 度 -4~18 度
重量（本机/包装）	6.8 Kg/8.1 Kg
环境因素	工作温度：50°F~104°F（10℃~40℃） 工作湿度：10%~80% 存放温度：-4°F~113°F（-20℃~45℃） 存放湿度：5%~90%

-设计和规格可能有变动，恕不事先通知。

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2-3 LHA20WS 特点

序号	特点	特点	操作方法
1	自动调节	205BW 首次以某些分辨率打开，可以自动进行调节，以获得高质量	
2	自动开机/关机	205BW 可以自动检查来源是否改变，并将来源改为有效输入	
3	墙上支座	205BW 支持墙上支座（100×100）	
4	灰度系数和色温精细调节	205BW 支持对灰度系数和色温进行 3 步调节	
5	魔幻亮度	205BW 支持 6 个不同的亮度模式 （文本/互联网/游戏/体育运动/电影/定制）	
6	清晰度	调节清晰度	

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2-4 规格比较

型号	LHA20WS 205BW	LS20BRD 204B
设计		
屏幕尺寸	20.1"	20.1"
亮度	300cd/㎡	300cd/㎡
对比度	600:1	O
快速响应时间	8ms	O
魔幻转动	X	X
Magic tune	Ver 3.6	采用 3.6 版
清晰度	O	采用 3.6 版
魔幻亮度	6 步 文本、互联网、体育运动、电影、游戏、定制	6 步 文本、互联网、体育运动、电影、游戏、定制

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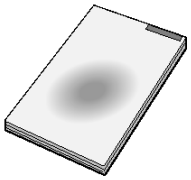
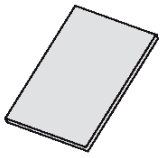
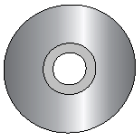
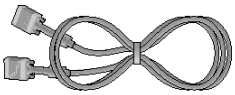
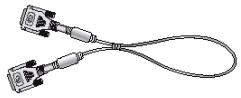
2-5 选装件规格

物品	物品名称	代号	备注
	快速安装指南	BH68-00376L	
	保修卡 （在所有地点不提供）	BH68-00261F	
	使用说明书， 显示器驱动程序， MagicTune™软件	BN59-00509C	
	D-Sub（15 针） 电缆	BN39-00244B	
	电源线	3903-000085	
	DVI 电缆	BN39-00246F	单独出售

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10 操作说明和安装

10-1 正面

1. 菜单按钮
打开 OSD 菜单。还用于退出 OSD 菜单或返回以前的菜单。

2. MagicBright 按钮
MagicBright 是依据正在观看的图片内容提供最佳观看环境的新功能。当前有六个不同的模式：定制、文本、互联网、游戏、体育运动和电影。各模式有自己的预先录制的亮度值。只需按下 MagicBright 控制按钮，即可轻松选择六个设置之一。

1) 定制
尽管本公司的工程师仔细选择数值，但是预设值可能让您的眼睛不舒适，取决于您的偏好。如果出现这种情况，使用 OSD 菜单调节亮度和对比度。

2) 文本：普通亮度
适用于涉及大量文字的文档或作品

3) 互联网：中等亮度
适用于文字和图形等组合图像。

4) 游戏
适用于观看游戏等动画。

5) 体育运动
适用于观看体育运动等动画。

6) 电影：高亮度
适用于观看 DVD 或 VCD 等动画。

3. 亮度按钮
当屏幕上没有 OSD 时，按下该按钮调节亮度。

2,3.调节按钮
调节菜单中的项目。

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4．确定按钮/来源按钮

启用反白显示的菜单项。

按下“来源”，然后在 OSD 关闭时选择视频信号。（当按下来源按钮改变输入模式时，显示当前模式的屏幕的中部显示信息-模拟或数字输入信号。）

注意：如果选择数字模式，必须使用 DVI 电缆将显示器接到图形卡端口上。

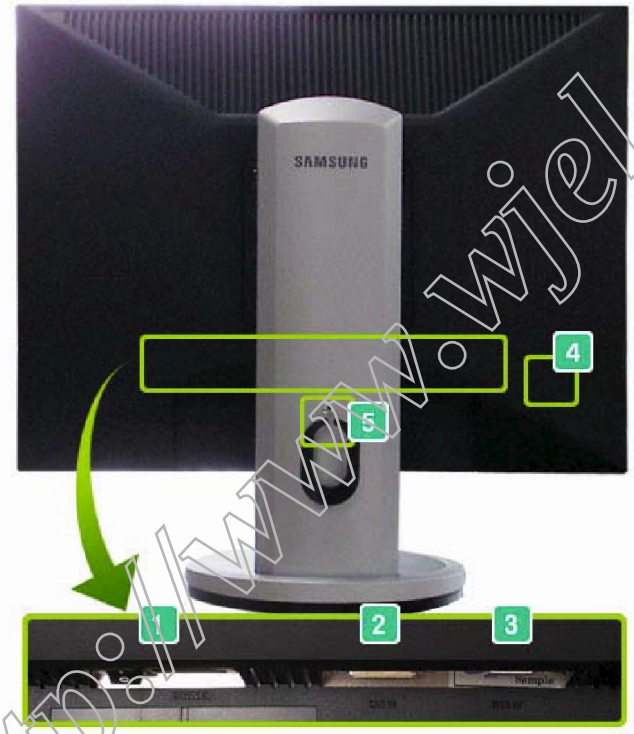
5.自动按钮

当按下“自动”按钮时，如图所示，在中央动画屏中显示自动调节屏幕。通过自动调节功能，显示器可以自动调节输入的视频信号。自动调节微调、粗调和位置值。（仅限于在模拟模式下）

6.电源按钮

使用该按钮打开和关闭显示器。

10-2 后部



（显示器背面的配置可能随产品而异。）

1. **电源开关：**打开和关闭显示器。

2. **电源输入：**电源线、插入显示器和墙上的插座。

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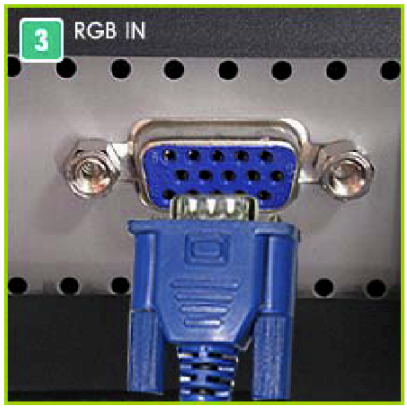
DVI 输入端口：将 DVI 线接到显示器背面上的 DVI 输入端口上。
（来源：数字）



RGB 输入端口：将信号线接到显示器背面上的 RGB 输入端口上。（来源：模拟）

Kensington 锁：Kensington 锁是当在公共场所中使用时用于固定系统的装置。（必须单独购买锁定位置。）

底座止动销：拆除底座上的固定销，可以向上和向下提显示器。

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10-3 使用底座

10-3-1 拆除底座

1. 关闭显示器并拔下电源线。
2. 将液晶显示器面向下置于平坦的表面上，在显示器下铺上垫子，以保证显示屏。
3. 拆除四个螺钉，然后从液晶显示器拆除底座。

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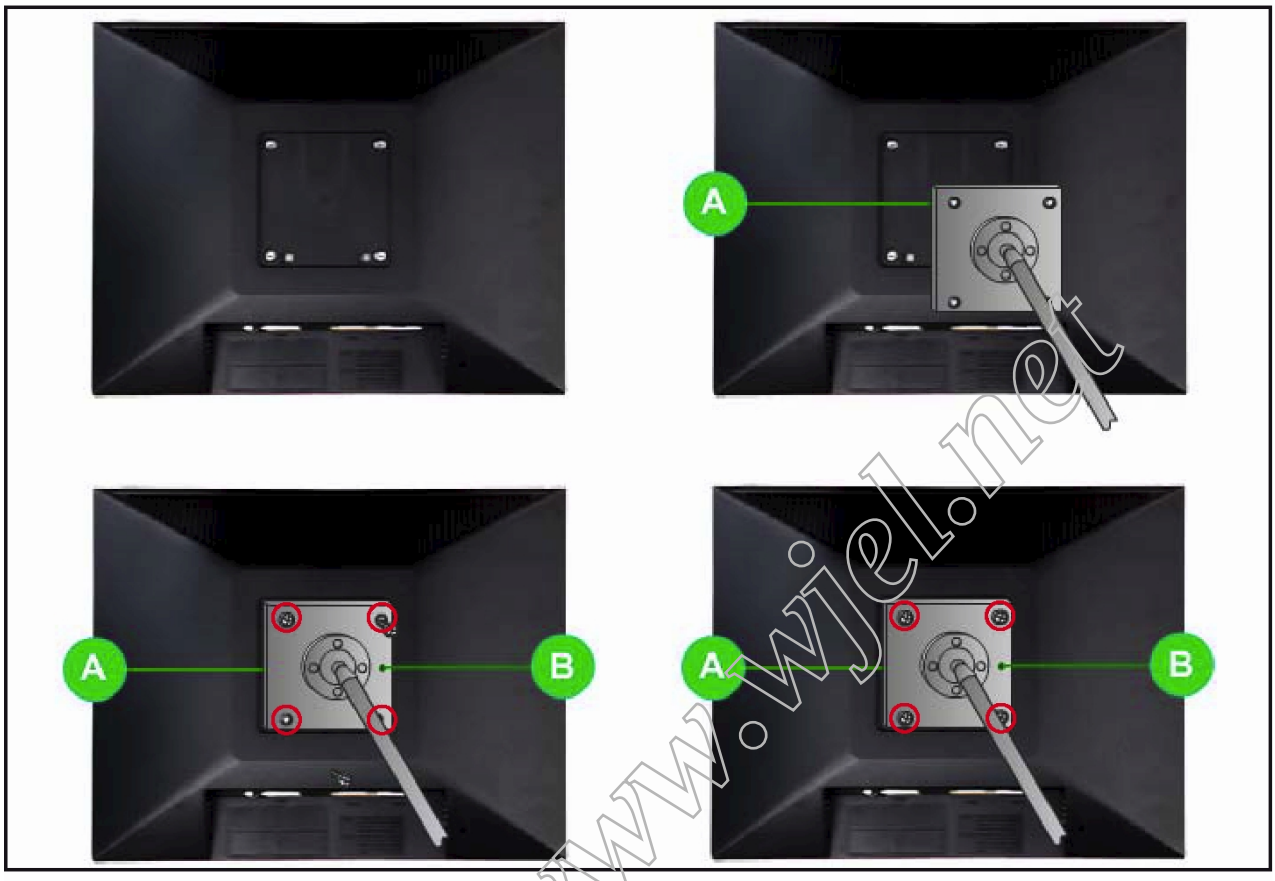
10-3-2 安装底座

-本显示器可安装 100mm x 100mm 符合 VESA 标准的安装接口板。



A.显示器

B.安装接口板

1. 关闭显示器，并拔下电源线。
2. 将液晶显示器面向下置于平坦的表面上，在液晶显示器下面铺上垫子，以保护屏幕。
3. 拆除四个螺钉，然后从液晶显示器拆除底座。
4. 将安装接口板与后盖安装板中的孔对准，并用随臂型底座、墙上安装的挂钩或其他底座提供的四个螺钉紧固。

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备忘录

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11 拆卸和重新组装

维修手册的这一章叙述 205BW 液晶显示器的拆卸和重新组装步骤。

⚠ **警告：本显示器包含静电敏感器件。处理这些部件时应小心。**

11-1 拆卸

⚠ **小心：1.拆卸显示器前，请断开电源。**
2.在拆卸时请勿使用除提供的开启工具以外的其他开启工具。
3.请按下述步骤拆卸。
4.后盖开启工具：BH81-00001A

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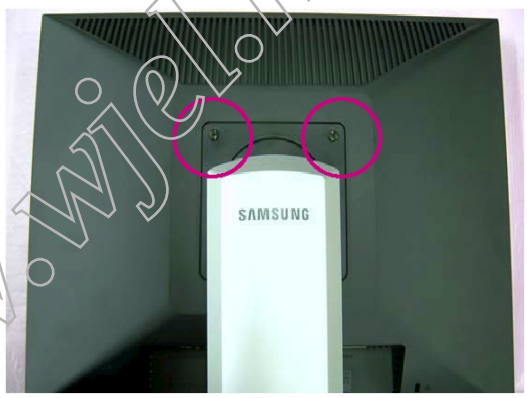
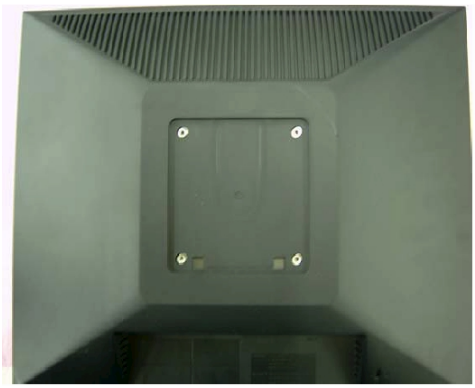
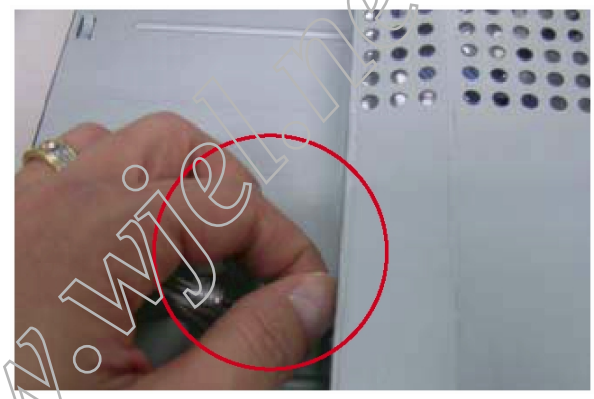
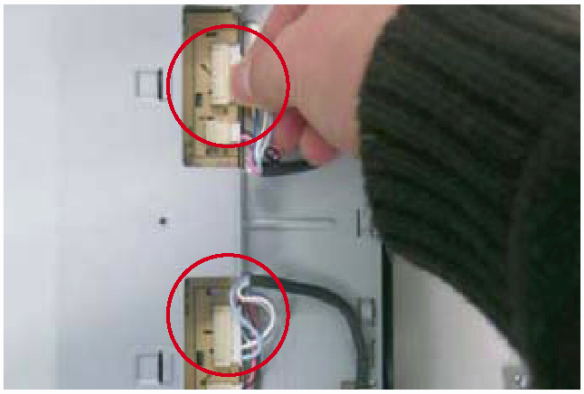
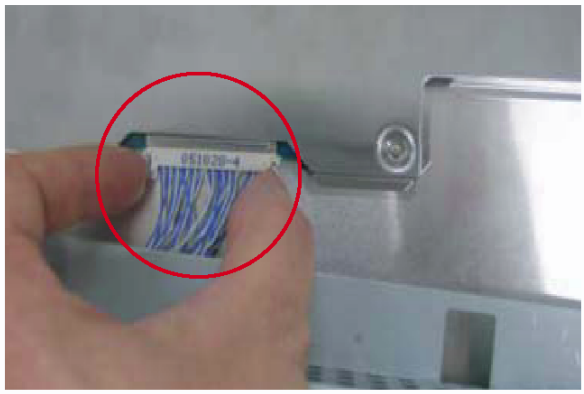
说明	图片说明
1. 将显示器置于垫子上，并拆除 VESA 盖上的两个螺钉。	
	
2. 向上拉并拆除 VESA 盖。	

说明	图片说明
3. 从灯护板拆除 1 个螺钉。	
4. 从印刷电路板组件断开功能电线。	
5. 断开 4 根灯电线和电线。	
6. 从显示屏断开 LVDS 电线。	

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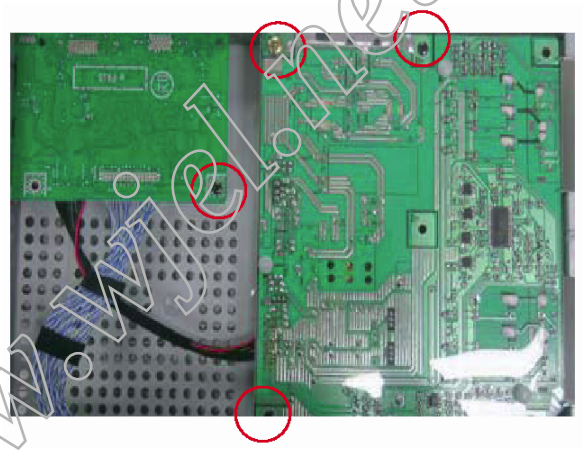
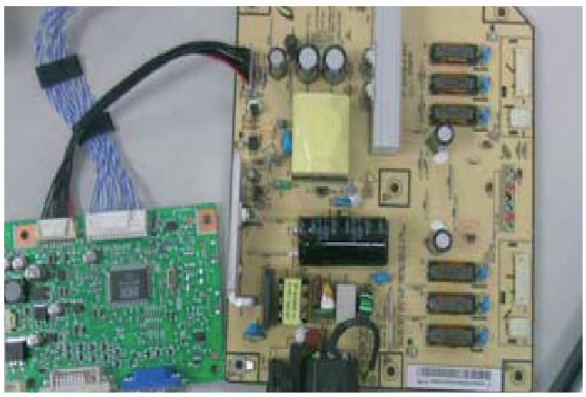
简明	图片说明
7. 从与印刷电路板支架相连的印刷电路板拆除 4 个六角螺钉。	
8. 如图所示，从印刷电路板拆除 4 个螺钉，并从支架向上拉印刷电路板组件。	
9. 完全拆卸印刷电路板。	

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11-2 重新组装

-重新组装步骤与拆卸步骤相反。

备忘录

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3 调整和调节

维修手册本章说明如何使用 RS232 JIG。
该功能为更换 AD 板所需。

3-1 所需的设备

以下设备为调整显示器所需。

装有Windows 95、Windows 98、Windows NT、 Windows 2000或Windows XP的计算机。
MTI-2031 DDC 管理工具

3-2 自动颜色调节

对于模拟图像，在 16 级灰度图或使用黑色和白色的任何图案以及任何模式中。（推荐 16 级灰度图和 XGA 模式）

1. 推 OSD 菜单按钮，打开 OSD。
2. 选择语言“英语”。
3. 在 5 秒内按下确定按钮。
4. 看到屏幕闪烁。

3-3 DDC EDID数据输入

1. 在更换 AD 印刷电路板时，输入 DDC EDID 数据。
2. 由 HQ 质量控制部门接收/下载适于该机型的 DDC 文件。
   安装以下装置（图 1）并输入数据。

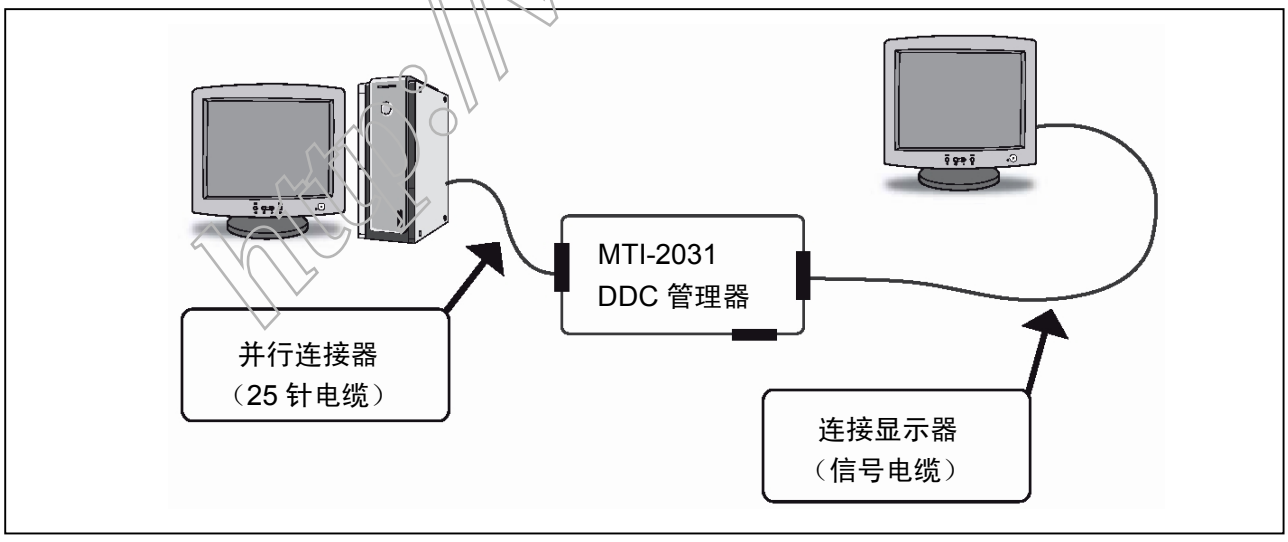

图 1

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3-4 维修功能规格

3-4-1 如何显示维修功能OSD

1. 在将亮度和对比度都设为“0”后，按下“确定”按钮 5 秒以上。
2. 维修功能显示如下。

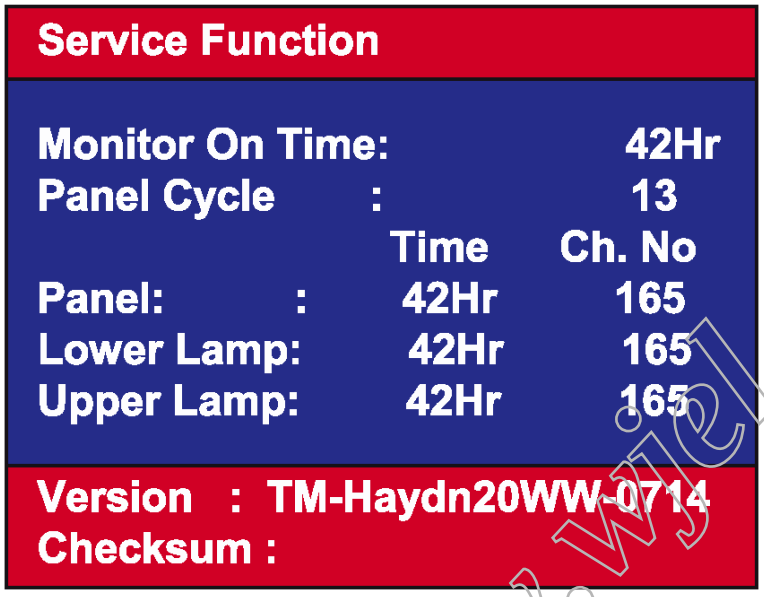

图 2

3-4-2 如何控制维修功能OSD

1.显示器开机时间：开机时间

2.显示屏周期：显示屏开/关时间（关机、模式变化、DPMS 开/关…）

3.显示屏：显示屏开启时间

（每次更换显示屏时，按下菜单键 5 秒，以便添加到 Ch 数中，Ch 数表示更换显示屏的次数。）

4.上灯：上灯开启时间

（当更换上灯时，按下菜单，以便添加到 Ch 数中，Ch 数表示更换灯的次数。）

5.下灯：下灯开启时间

（当更换上灯时，按下菜单，以便添加到 Ch 数中，Ch 数表示更换灯的次数。）

6.自动调节：如果将自动调节菜单设置为开，当首次改变模式时，执行自动调节功能。默认状态为开启。

7.像素移动：未用

8.国家：用本菜单可以将 OSD 语言改为世界各地、韩语、汉语或日语。

可以用“+”键操纵菜单，并按下“菜单键”5 秒进行调节（显示屏、上灯和下灯菜单）。按下“-”键，还可以控制自动调节、像素移动和国家菜单。

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3-5 隐藏键列表

序号	功能	措施方法
1	隐藏维修功能	-.在将亮度和对比度设为“0”后，按下“确定”按钮 5 秒以上。 -.显示维修功能。
2	工厂预设	-.当打开菜单（任何菜单）时，按下“确定”键 5 秒以上。 -.屏幕闪烁，然后所有菜单返回工厂默认值。
3	自动校准	对于模拟图像，在 16 级灰度图或使用黑色和白色的任何图案以及任何模式中。（推荐 16 级灰度图和 XGA 模式） 1. 推 OSD 菜单按钮，打开 OSD。 2. 选择语言“英语”。 3. 在 5 秒内按下确定按钮。 4. 屏幕闪烁，自动校准完成。
4	OSD 锁	-.按下菜单键 5 秒以上，然后锁定 OSD。 -.如欲给 OSD 解锁，按下菜单键 5 秒以上。

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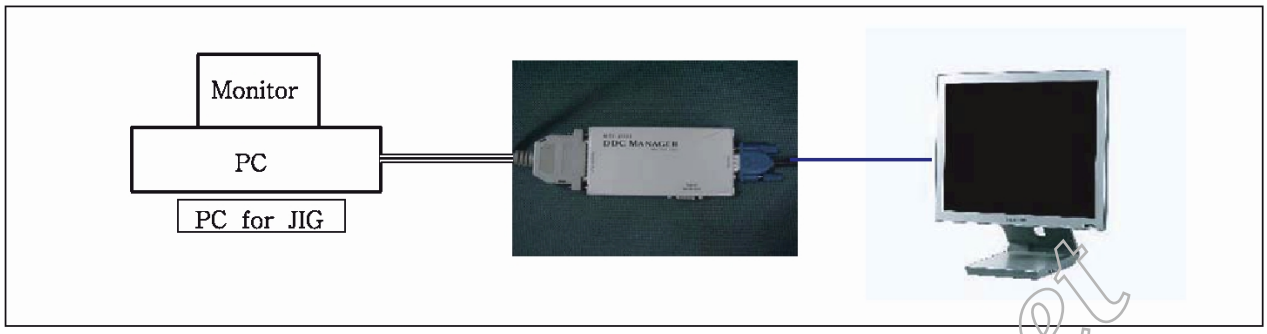
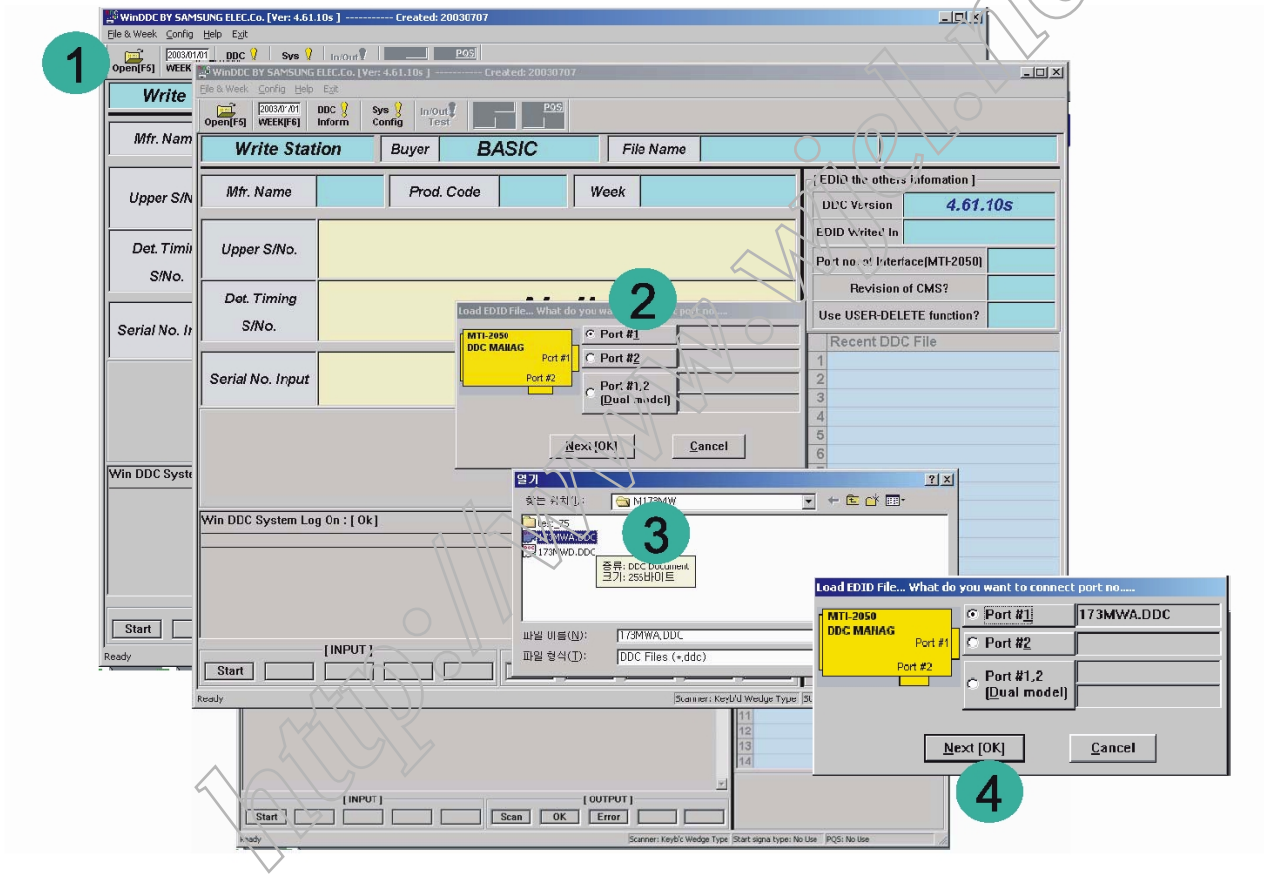
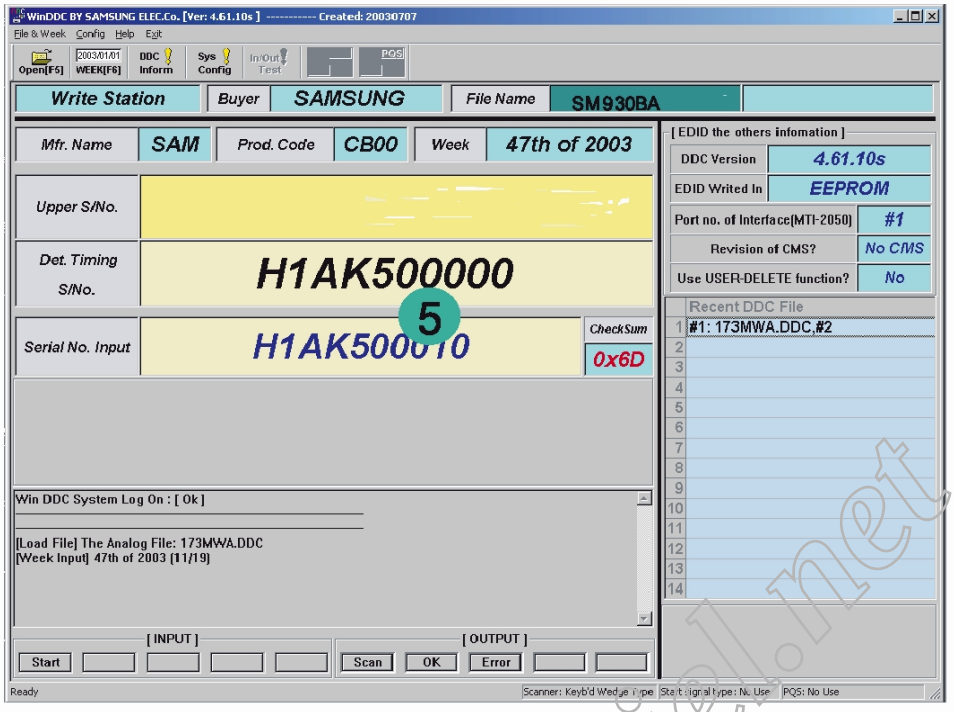
3-6 DDC输入方法（Windows程序）

在更换主板后，应通过 DDC 控制装置输入 DDC。
连接方法参照下图。





1. 在计算机中安装 Winddc.exe 程序。
2. 点击 Winddc 图标。
3. 打开文件。
4. 选择端口#1。
   装载 DDC 文件名
   -. “SM205BWA.ddc”
   -. “SM205BWD.ddc”
   点击下一步（确定）按钮。



5：输入显示器系列号，并按下确定键。

在模拟输入后，在进行数字输入时请进行#2~5。

3-7更换主板后执行的项目

更换主板后

1. 自动校准
2. EDID 安装（模拟和数字）
3. 工厂复位

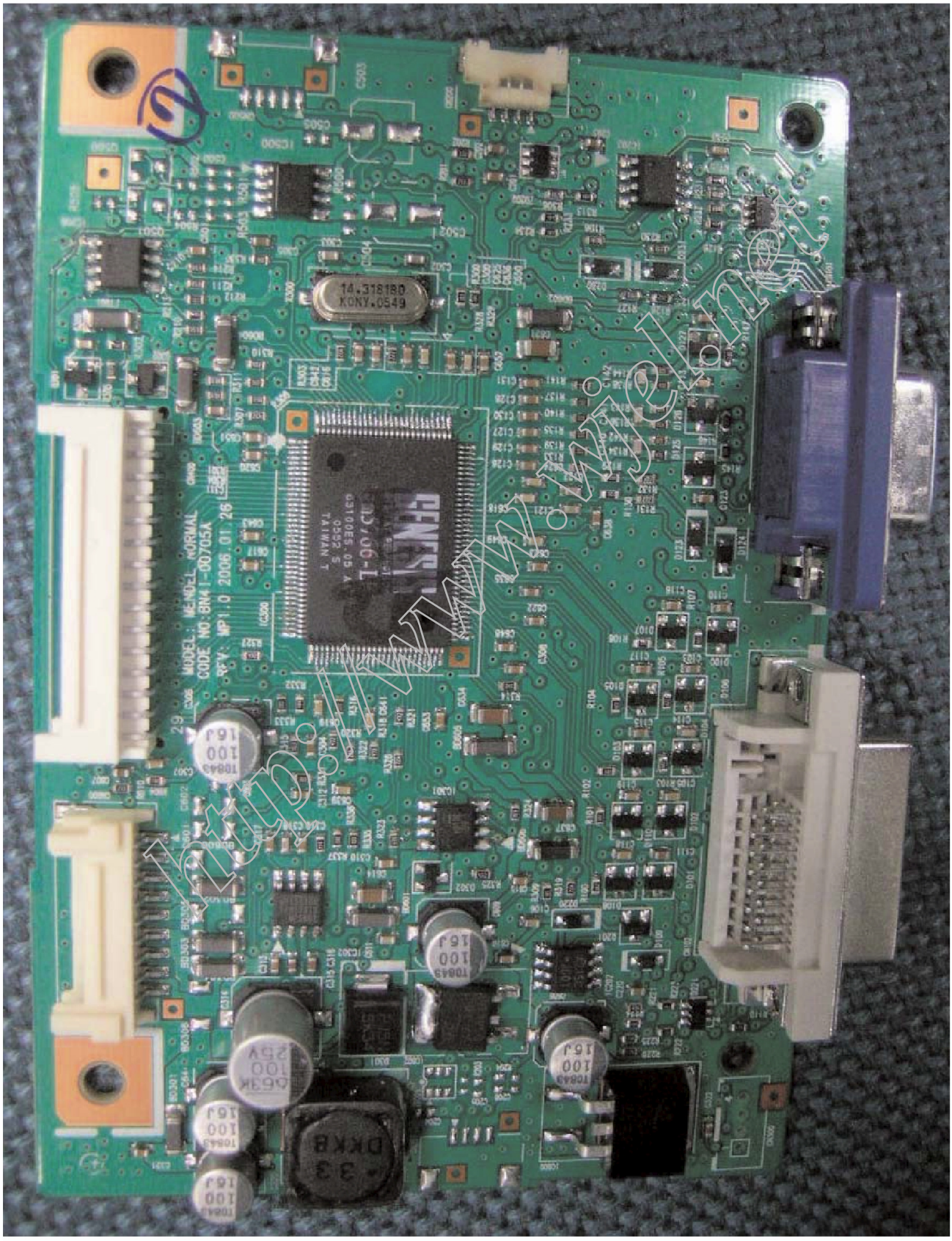
http://www.wjel.net

备忘录

http://www.wjel.net

13 电路说明

13-1 块说明



http://www.xie.com

13-2 块操作

序号	功能	说明
1	换算器	换算器集成了 ADC、TMDS、换算部分。
2	DDR 存储器	DDR 存储器存储换算器所需的帧信息。
3	MICOM	微控制器。 Micom 控制显示器的所有功能。

使用换算器（MST6281）内置的 A/D 变换器将来自 PC 的模拟信号变为数字信号。
换算器将该数字信号换算为最适于显示屏的信号，并对 LVDS 信号编码。
该 LVDS 信号通过 LVDS 连接器进入显示屏，以显示图像。

如果是 DVI 信号，集成 TMDS 块运行并处理。

MICOM 控制显示器和 OSD 的所有功能。

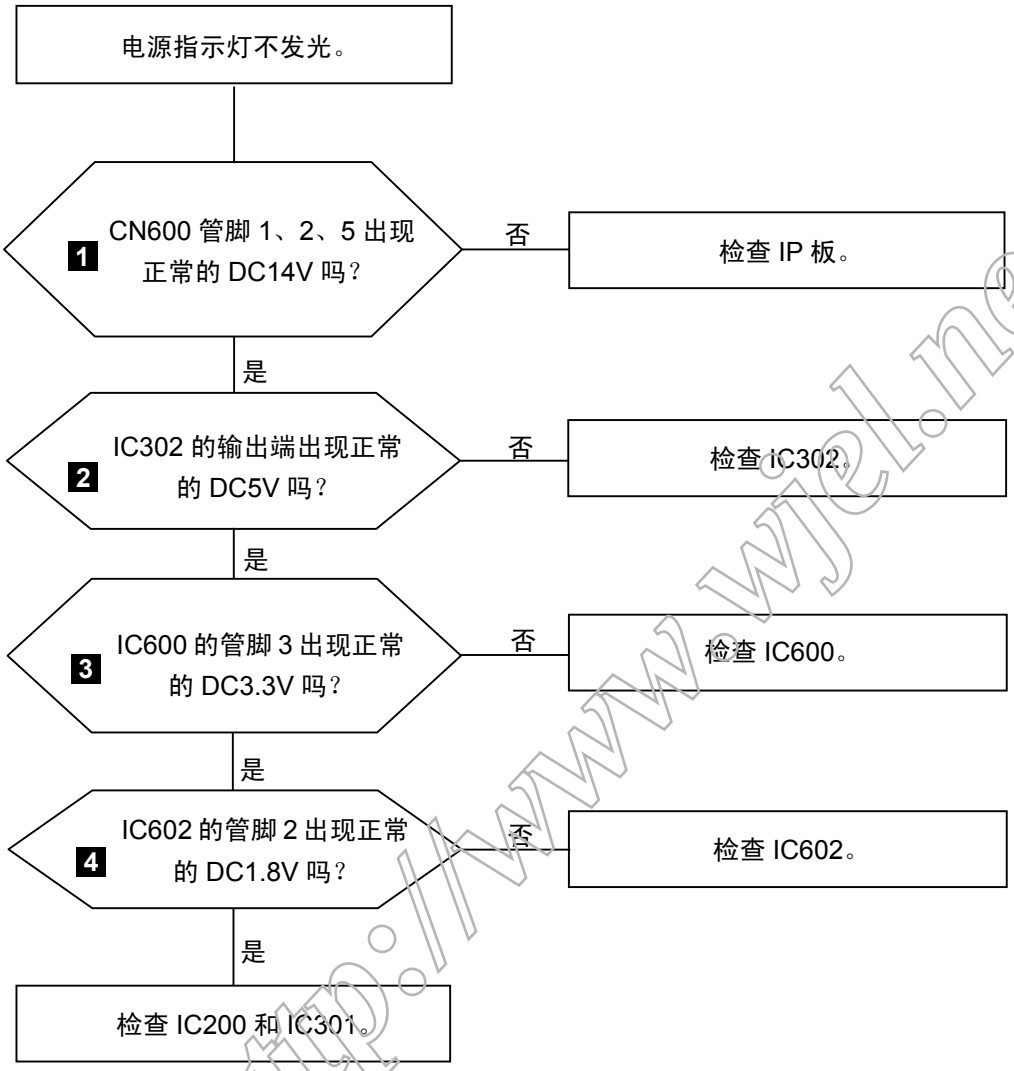
DC/DC 块从 I/P 板的输出 14V 形成合适的电压，该电压将用于换算器、micom、存储器、显示屏等所有设备的功能。

IP 板同时向主板和显示屏供电，控制显示屏背景灯。

http://www.wjel.net

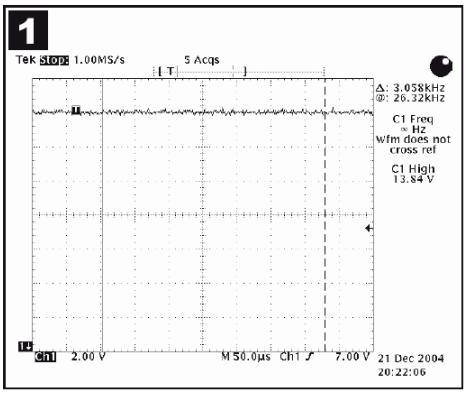
4 故障排除

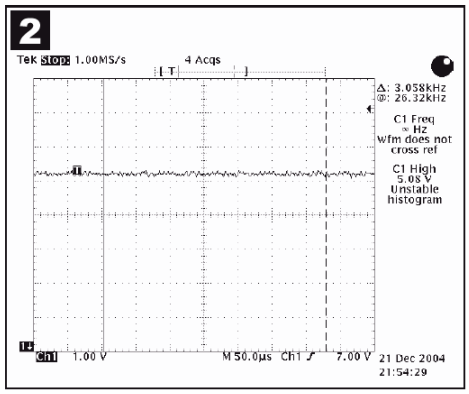
4-1 未通电

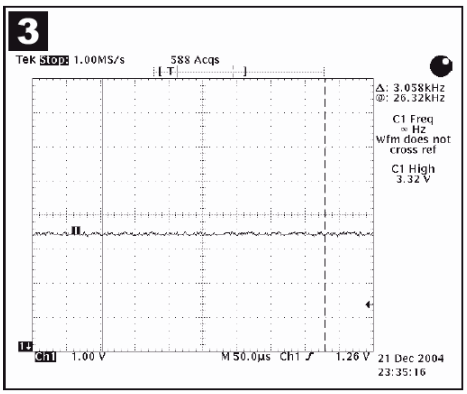


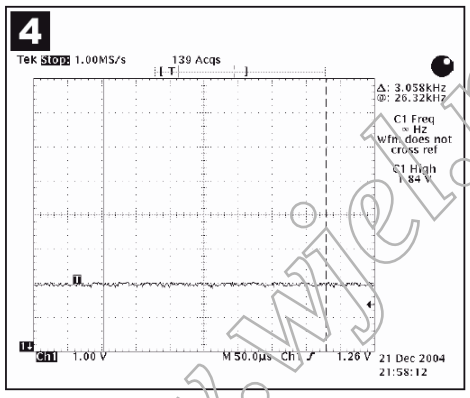
http://www.wjel.net

波 形



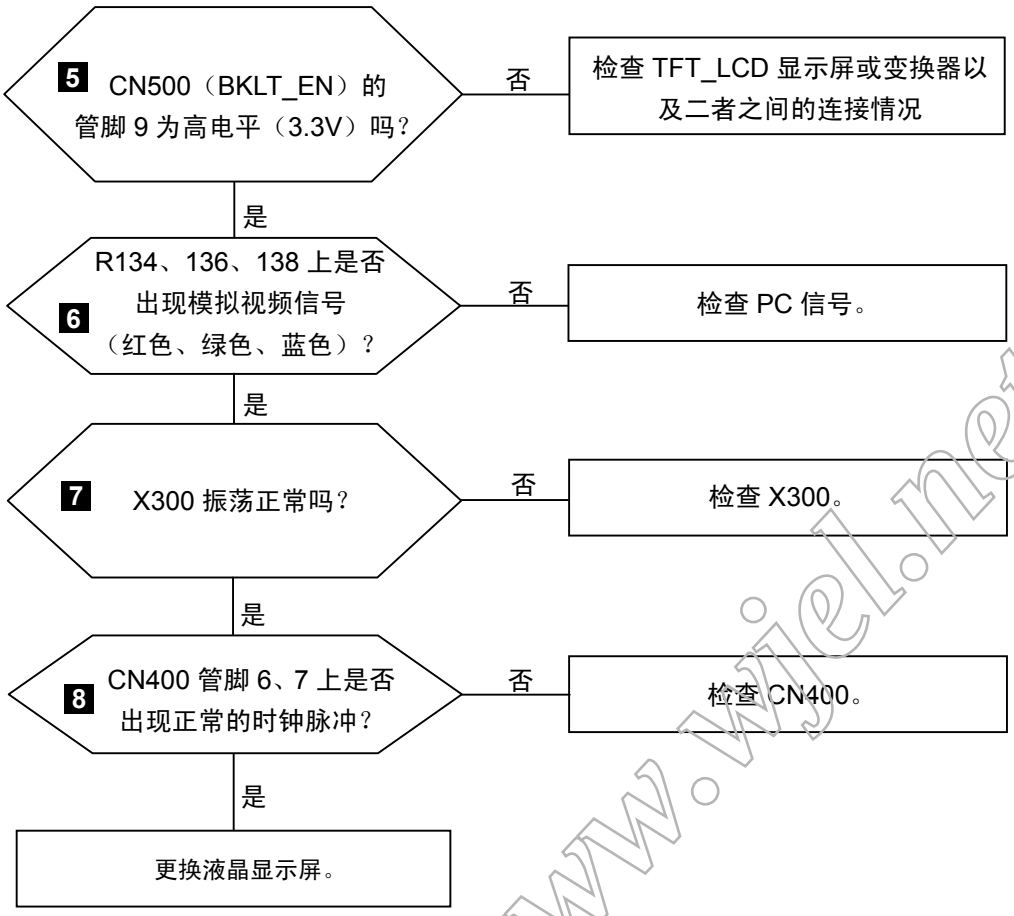






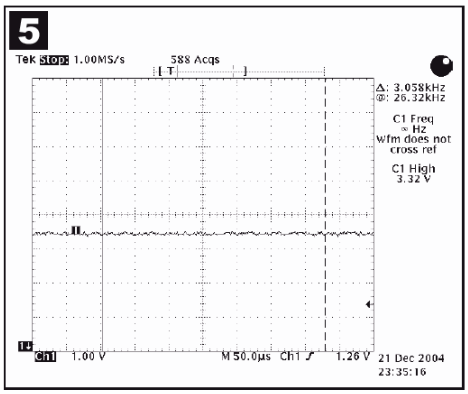
http://www.wje.net

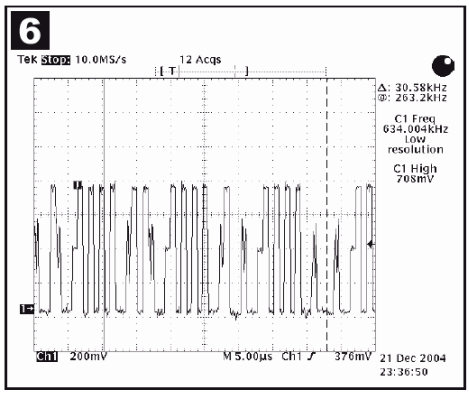
4-2 没有图像（PC 模拟信号）

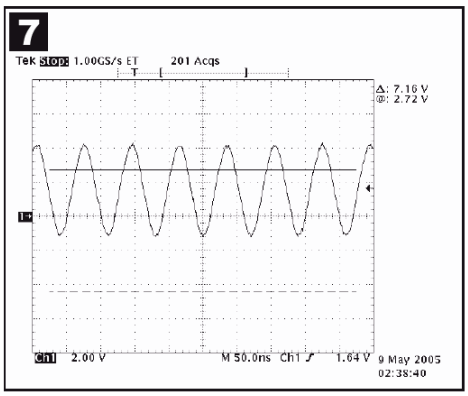


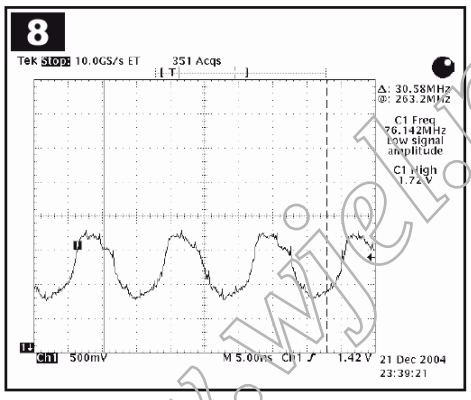
http://www.wjel.net

波 形



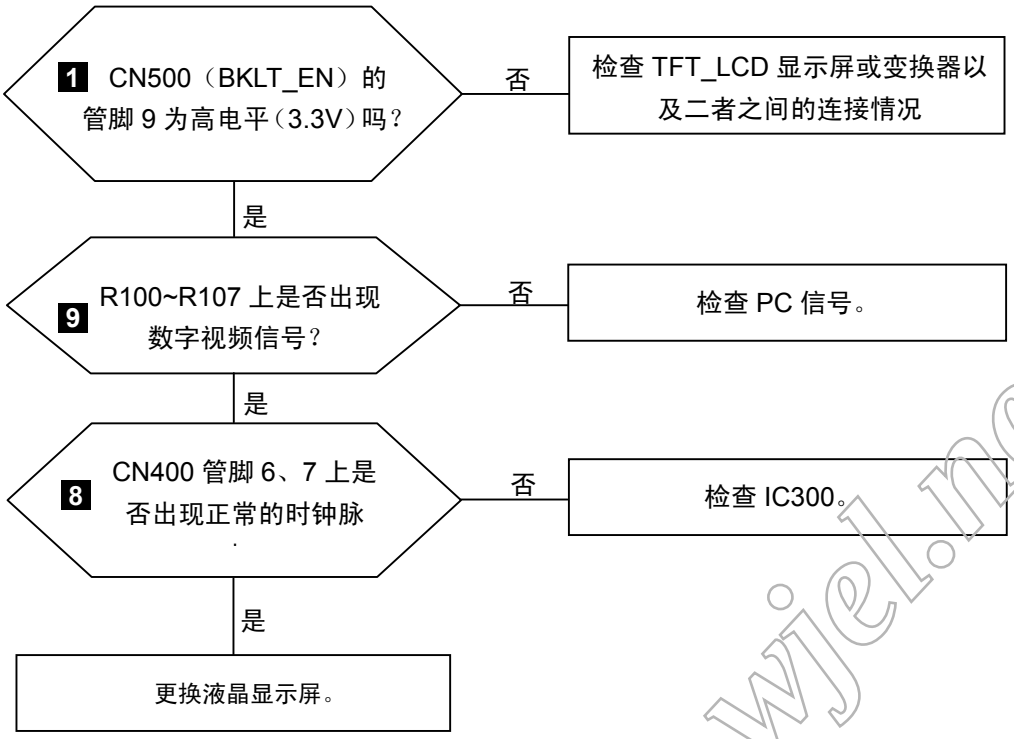






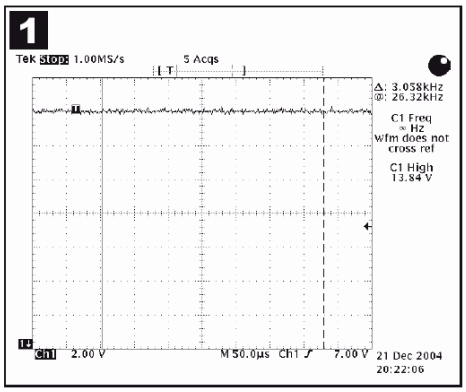
http://www.wjc.net

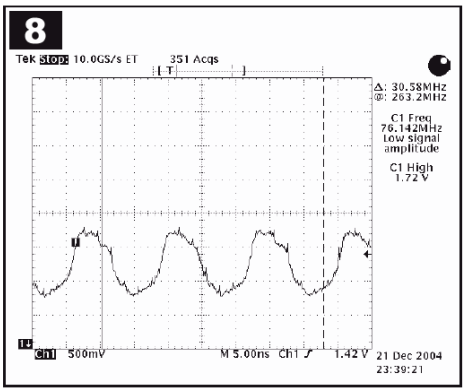
4-3 没有图像（PC 数字信号）

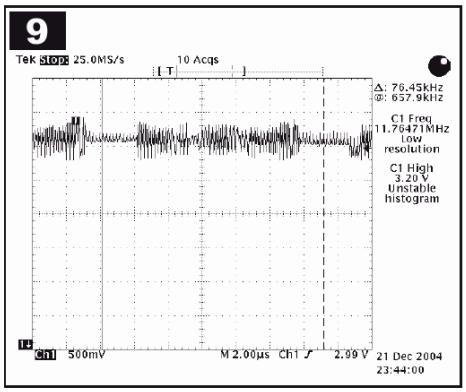


http://www.wjel.net

波 形





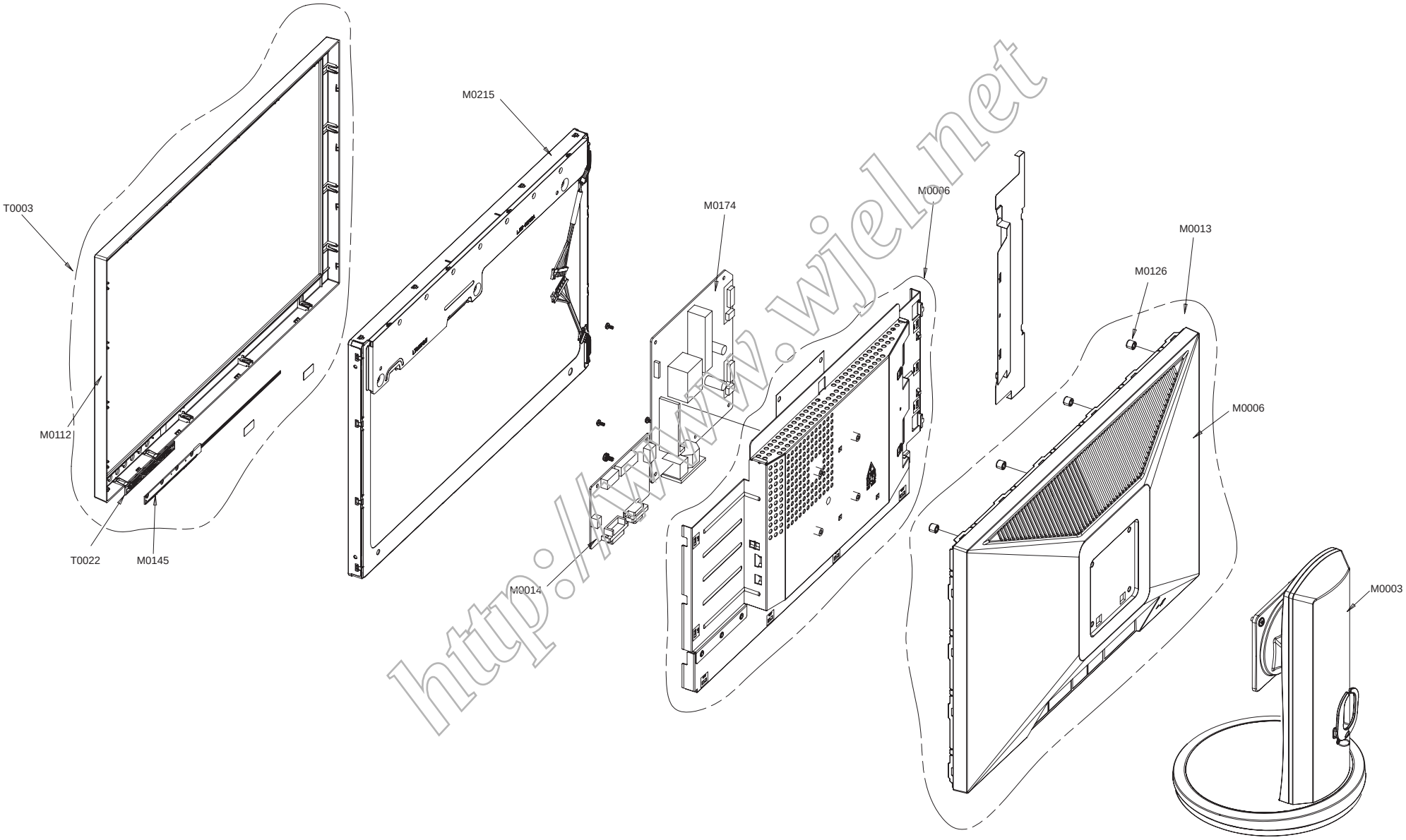


http://www.wjel.net

5 Exploded View and Parts List

-You can search for updated part codes through ITSELF web site.
URL : http://itself. sec. samsung.co.kr

5-1 LS20HAWCBZ/XSF Exploded View



http://www.wjel.net

5-1-2 LS20HAWCBZ/XSF Parts List

Location.No	CODE-NO	SPECIFICATION & DESCRIPTION	Q'TY	SA/SNA	REMARK
T0003	BN96-03328E	ASSY COVER P-FRONT;LS20HAW,ABS HB,BK24,4	1	S.A	
M0112	BN63-02513A	COVER-FRONT;S/M 205BW,ABS,HB,BK24	1	S.N.A	
T0022	BN64-00377A	KNOB CONTROL;HA17TS,PC CLEAR+SMOG,T2.1,9	1	S.N.A	
M0145	BN96-02474C	ASSY BOARD P-FUNCTION;HAYDN,YWP-VD-05-05	1	S.A	
M0215	BN07-00402A	LCD-PANEL;M201EW02 V8,Doppler,6bit Hi-FR	1	S.A	
M0006	BN96-04800A	ASSY SHIELD P-COVER;LS20HAW,SECC T1.0,4L	1	S.N.A	
M0014	BN94-01300K	ASSY PCB MAIN-SEDA,FUCHION PCB;HAYDN*	1	S.N.A	
M0174	BN44-00127N	IP BOARD;IP-43130A(BW),205BW,3.0 ~5.0mA,	1	S.A	
M0013	BN96-04799A	ASSY COVER P-REAR;LS20HAW,HIPS HB,BK24,4	1	S.A	
M0006	BN63-03158A	COVER-REAR;LS20HAW,HIPS HB,BK24,4LAMP	1	S.N.A	
M0126	BN73-00049E	RUBBER-FOOT;LS20MEW,RUBBER,CR,LIGHT GRAY	4	S.N.A	
M0003	BN96-05837C	ASSY STAND P;LS19HAW (WIDE),HIPS HB,BK24	1	S.A	

http://www.wjel.net

6 Electrical Parts List

-You can search for updated part codes through ITSELF web site.
URL : http://itself.sec.samsung.co.kr/

6-1 LS20HAWCBZ/XSF Parts List

Level	Loc. No.	Code No.	Description & Specification	Q'ty	SA/SNA
		LS20HAWCBZ/XSF	205BW,WPA1/S20B2-LHA,20,LCD-MO,CHINA		
0.1	M0001	BN90-00900H	ASSY COVER FRONT;LS20HAWCBZ/XSH,4lmp,205	1	S.N.A
..2	T0003	BN96-03328E	ASSY COVER P-FRONT;LS20HAW,ABS HB,BK24,4	1	S.A
...3	M0112	BN63-02513A	COVER-FRONT;S/M 205BW,ABS,HB,BK24	1	S.N.A
...3	T0022	BN64-00377A	KNOB CONTROL;HA17TS,PC CLEAR+SMOG,T2.1,9	1	S.N.A
...3	M0145	BN96-02474C	ASSY BOARD P-FUNCTION;HAYDN,YWP-VD-05-05	1	S.A
....4	M0014	BN94-01300K	ASSY PCB MAIN-SEDA,FUCHION PCB;HAYDN*	1	S.N.A
.....5	CIS	0203-001809	TAPE-DOUBLE FACE;467MP,-,-,W7.80,L106.67	1	S.N.A
.....5	SW1	BN34-00001A	SWITCH-DOME SHEET;HYADN_FUNCTION F/K,DOM	1	S.A
.....5	SW2	BN34-00001A	SWITCH-DOME SHEET;HYADN_FUNCTION F/K,DOM	1	S.A
.....5	SW3	BN34-00001A	SWITCH-DOME SHEET;HYADN_FUNCTION F/K,DOM	1	S.A
.....5	SW4	BN34-00001A	SWITCH-DOME SHEET;HYADN_FUNCTION F/K,DOM	1	S.A
.....5	SW5	BN34-00001A	SWITCH-DOME SHEET;HYADN_FUNCTION F/K,DOM	1	S.A
.....5	SW6	BN34-00001A	SWITCH-DOME SHEET;HYADN_FUNCTION F/K,DOM	1	S.A
.....5	M2893	BN39-00688A	LEAD CONNECTOR;HAYDN,UL1571#30,4P,450mm,	1	S.A
.....5	CIS	BN61-01846A	GUIDE-CONTROL;HA17T,ABS HB,T1.1,9,112,IV	1	S.N.A
.....5	T0174	BN97-01589K	ASSY SMD;HAYDN*	1	S.N.A
......6	L0405	0601-001896	LED;SMD,BLUE,1.6x0.8x0.4mm,470,1.6x0.8x0	1	S.A
......6	R3	2007-000081	R-CHIP;2.7Kohm,5%,1/10W,TP,1608	1	S.A
......6	R4	2007-000081	R-CHIP;2.7Kohm,5%,1/10W,TP,1608	1	S.A
......6	R1	2007-000123	R-CHIP;1.5Kohm,5%,1/10W,TP,1608	1	S.A
......6	R2	2007-000123	R-CHIP;1.5Kohm,5%,1/10W,TP,1608	1	S.A
......6	CN330	3711-005935	HEADER-BOARD TO CABLE;BOX,4P,1R,1mm,SMD-	1	S.A
......6	T0077	BN41-00633A	PCB MAIN;HAYDN,FR4,2L,MP1.0,0.6T,105*8,1	1	S.N.A
0.1	M0216	BN90-00907E	ASSY STAND;LS20HAWCBZ/XSH,4LMP	1	S.N.A
..2	M0003	BN96-05837C	ASSY STAND P;LS19HAW (WIDE),HIPS HB,BK24	1	S.A
...3	T0081	6001-001547	SCREW-MACHINE;BH +,M4,L10(5),ZPC(BLK),SW	2	S.A
...3	M0081	6003-000275	SCREW-TAPTITE;BH,+,-,B,M3,L10,ZPC(BLK),S	5	S.N.A
...3	M0081	6003-000337	SCREW-TAPTITE;BH,+,S,M4,L10,ZPC(BLK),SWR	4	S.A
...3	M0081	6003-001001	SCREW-TAPTITE;FH,+,B,M3,L8,ZPC(BLK),SWRC	7	S.N.A
...3	HC+CW	6009-001370	SCREW-SPECIAL;PWH,+,-,M4,L8,ZPC(WHT),SWR	1	S.N.A
...3		BN61-00875A	GUIDE-WASHER;HS15PO,SK-5,T0.5,NTR	4	S.N.A
...3		BN61-01396A	HOLDER-SWIVEL RING;MJ17MS,ACETAL,NTR	1	S.N.A
...3	M0114	BN61-01397A	HOLDER-WIRE;MJ17MS,ABS HB,BK07	1	S.N.A
...3		BN61-01404A	BRACKET-STAND BOTTOM;MJ17MS,SECC,T2.0	1	S.N.A
...3	CIS4	BN61-01438A	HOLDER-STAND;MATISSE HAS-STAND,SWRCH18A	1	S.N.A
...3		BN61-02073A	BRACKET-STAND LIFT;HA17TS,SECC,T2.0,52.5	1	S.N.A
...3		BN61-02074A	GUIDE-STAND BODY;HA17TS,ACETAL,T1.5,19.8	2	S.N.A
...3		BN61-02075A	GUIDE-STAND LIFT;HA17TS,ACETAL,T2.0,57.6	1	S.N.A
...3		BN61-02433A	BRACKET-STAND BODY;S/M 205BW,SECC,T2.0	1	S.N.A
...3	M0412	BN63-01515D	COVER-SWIVEL BASE;MATISSE,HIPS,T2.5,200,	1	S.N.A
...3	M0174	BN63-01983A	COVER-STAND TOP;HA17TS,HIPS,T2.5,200,200	1	S.N.A
...3	T0003	BN63-01984A	COVER-STAND BOTTOM;HA17TS,HIPS,T2.5,200,	1	S.N.A
...3		BN63-02206A	COVER-STAND SUB;HA17TS,HIPS,T2.0,80,100,	1	S.N.A
...3		BN63-02524A	COVER-STAND REAR;S/M 205BW,HIPS,HB,BK24	1	S.N.A
...3		BN63-02525A	COVER-STAND TILT;S/M 205BW,HIPS,HB,BK24	1	S.N.A
...3		BN63-02526A	COVER-STAND FRONT;S/M 205BW,HIPS,HB,BK24	1	S.N.A
...3	T0132	BN73-00077A	RUBBER FOOT;MATISSE,BUMPON,¨ª13.5,T2.0,6	4	S.N.A
...3	T0081	BN73-00085A	RUBBER CUSHION;MATISSE,¨ª4.5(IN SIDE),CL	1	S.N.A
...3	M0007	BN96-01524A	ASSY STAND P-STOPPER;MJ17BS,SUS T1.0,L26	1	S.N.A
...3	M0126	BN96-02310A	ASSY STAND P-SPRING;HA19TS,SUS301	2	S.N.A

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Level	Loc. No.	Code No.	Description & Specification	Q'ty	SA/SNA
...3	T0054	BN96-05355A	ASSY HINGE P;940B,HGI,SGCC,T2.0	1	S.A
....4		BN60-00040A	SPACER-WASHER;940B,SK-5,8.0,14.0,0.4	4	S.N.A
....4		BN61-03141A	BRACKET-HINGE TILT;940B,HGI, SGCC,T2.0	1	S.N.A
....4	T0530	BN61-03184A	SPRING ETC-COIL;940B,SWPB,3.0,15.0,19.0,	1	S.N.A
....4	T0530	BN61-03185A	SPRING ETC-COIL;940B,SWPB,3.0,15.0,19.0,	1	S.N.A
....4		BN61-03208A	SPRING ETC-DISK;940B,SK-5,8.0,14.5,0.85	4	S.N.A
....4		BN61-03263A	BRACKET-STAND VESA;940B,HGI, SGCC,T2.0	1	S.N.A
....4		BN66-00009A	SHAFT-HINGE;940B,SUM24L,16.5,14	2	S.N.A
0.1	M0002	BN90-01220A	ASSY COVER REAR;ATZ-LS20HAWCSZ/EDC,205BW	1	S.N.A
..2	M0013	BN96-04799A	ASSY COVER P-REAR;LS20HAW,HIPS HB,BK24,4	1	S.A
...3	M0006	BN63-03158A	COVER-REAR;LS20HAW,HIPS HB,BK24,4LAMP	1	S.N.A
...3	M0126	BN73-00049E	RUBBER-FOOT;LS20MEW,RUBBER,CR,LIGHT GRAY	4	S.N.A
0.1	M0112	BN91-01028B	ASSY SHIELD;ATZ-LS20HAWCSZ/EDC,205BW,4LM	1	S.N.A
..2		BN63-03157A	SHIELD-LAMP;LS20HAW,SPTE,T0.3,4LAMP	1	S.N.A
0.1	M0017	BN91-01408H	ASSY CHASSIS-ATZ;XSF;LS20HAWCBZ/XSF,WIDE	1	S.A
..2	M0081	6003-000115	SCREW-TAPTITE;BH,+,B,M3,L6,ZPC(BLK),SWRC	4	S.A
..2	M0081	6003-001439	SCREW-TAPTITE;BH,+,-,S,M4,L8,ZPC(WHT),SW	1	S.N.A
..2	T0562	6046-001013	STAND OFF;M3,L5,Ni PLT,SUM24L,#4-40	4	S.N.A
..2	M2893	BN39-00664F	LEAD CONNECTOR-LVDS;HAYDN,UL1571#30,UL/C	1	S.A
..2	M0174	BN44-00127N	IP BOARD;IP-43130A(BW),205BW,3.0 ~5.0mA,	1	S.A
..2		BN61-02426A	BRACKET-SHIELD;S/M 203B,SPTE,T0.3	1	S.N.A
..2		BN94-01204K	ASSY PCB MAIN-ATZ,XSF;LS20HAWCBZ/XSF*,WI	1	S.N.A
...3	T0245	0202-001492	SOLDER-WIRE FLUX;HSE-02 LFM48 SR-34 S,-,	0.003	S.N.A
...3	CN102	3701-001173	CONNECTOR-DVI;24P,3R,FEMALE,ANGLE,AUF	1	S.A
...3	CN101	3701-001219	CONNECTOR-DSUB;15P,3R,FEMALE,ANGLE,AUF	1	S.A
...3	CN400	3711-005884	HEADER-BOARD TO BOARD;BOX,30P,2R,2mm,ANG	1	S.A
...3	HDCP	BN97-00688A	ASSY HDCP;BN46-00018A,PS-42V6S,D73A,GENE	1	S.N.A
....4		BN46-00018A	KEY CODE-CERTIFICATE;(HDCP KEY)PPM42M5S,	1	S.N.A
...3	T0174	BN97-01414L	ASSY SMD;LS20HAW*	1	S.N.A
....4	D100	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A
....4	D101	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A
....4	D102	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A
....4	D103	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A
....4	D104	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A
....4	D105	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A
....4	D106	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A
....4	D107	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A
....4	D108	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A
....4	D110	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A
....4	D125	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A
....4	D126	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A
....4	D127	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A
....4	D301	0402-001098	DIODE-RECTIFIER;SK34,40V,3A,SMC,TP	1	S.A
....4	D109	0403-001411	DIODE-ZENER;-,5.49-5.73V,200mW,SOD-323,T	1	S.A
....4	D123	0403-001411	DIODE-ZENER;-,5.49-5.73V,200mW,SOD-323,T	1	S.A
....4	D124	0403-001411	DIODE-ZENER;-,5.49-5.73V,200mW,SOD-323,T	1	S.A
....4	D220	0403-001411	DIODE-ZENER;-,5.49-5.73V,200mW,SOD-323,T	1	S.A
....4	D230	0403-001411	DIODE-ZENER;-,5.49-5.73V,200mW,SOD-323,T	1	S.A
....4	D231	0403-001411	DIODE-ZENER;-,5.49-5.73V,200mW,SOD-323,T	1	S.A
....4	D221	0406-001061	DIODE-TVS;MMQA5V6T3,5.32/5.6/5.88V,24W,S	1	S.A
....4	D232	0406-001061	DIODE-TVS;MMQA5V6T3,5.32/5.6/5.88V,24W,S	1	S.A
....4	ZD200	0406-001061	DIODE-TVS;MMQA5V6T3,5.32/5.6/5.88V,24W,S	1	S.A
....4	Q201	0501-000342	TR-SMALL SIGNAL;KSC1623-Y,NPN,200mW,SOT-	1	S.A
....4	Q302	0501-002080	TR-SMALL SIGNAL;2SC2412K,NPN,200mW,SC-59	1	S.A
....4	Q409	0505-001957	FET-SILICON;NTR2101P,P,-8V,-3.7A,0.052oh	1	S.A
....4	IC112	1103-000129	IC-EEPROM;24C02,2Kbit,256x8Bit,SOP,8P,5x	1	S.A
....4	IC112	1103-000129	IC-EEPROM;24C02,2Kbit,256x8Bit,SOP,8P,5x	1	S.A

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....4	IC112	1103-001023	IC-EEPROM;24C08,8Kbit,1Kx8Bit,SOP,8P,5x4	1	S.A
....4	IC303	1203-001212	IC-VOL. DETECTOR;7029,SOT-89,3P,-,PLASTI	1	S.A
....4	T0170	1203-003059	IC-SWITCH VOL. REG.;MP1583,SOIC,8P,4.9x3	1	S.A
....4	T0087	1203-003060	IC-POSI.FIXED REG.;AP1084,TO-263,3P,9.97	1	S.A
....4	T0087	1203-003696	IC-POSI.FIXED REG.;NCP1117DT18T5G,DPAK,3	1	S.A
....4	IC109	1205-003036	IC-LCD CONTROLLER;GM5766H-LF-AB,PQFP,128	1	S.A
....4	R316	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	S.A
....4	R333	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	S.A
....4	R100	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A
....4	R101	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A
....4	R102	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A
....4	R103	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A
....4	R104	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A
....4	R105	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A
....4	R106	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A
....4	R107	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A
....4	R129	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A
....4	R130	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A
....4	R224	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A
....4	R225	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A
....4	R125	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R126	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R134	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R136	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R138	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R142	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R143	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R144	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R212	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R213	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R222	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R223	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R233	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R234	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R309	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R313	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R328	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R329	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R332	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R604	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
....4	R306	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	1	S.A
....4	R610	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	1	S.A
....4	R109	2007-000080	R-CHIP;2Kohm,5%,1/10W,TP,1608	1	S.A
....4	R128	2007-000080	R-CHIP;2Kohm,5%,1/10W,TP,1608	1	S.A
....4	R201	2007-000082	R-CHIP;3.3Kohm,5%,1/10W,TP,1608	1	S.A
....4	R202	2007-000082	R-CHIP;3.3Kohm,5%,1/10W,TP,1608	1	S.A
....4	R311	2007-000083	R-CHIP;3Kohm,5%,1/10W,TP,1608	1	S.A
....4	R330	2007-000083	R-CHIP;3Kohm,5%,1/10W,TP,1608	1	S.A
....4	R331	2007-000083	R-CHIP;3Kohm,5%,1/10W,TP,1608	1	S.A
....4	R300	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R307	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R310	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R318	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R319	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R320	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R321	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R322	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R325	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R326	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
....4	R327	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A

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....4	R108	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A
....4	R127	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A
....4	R220	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A
....4	R221	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A
....4	R230	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A
....4	R231	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A
....4	R232	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A
....4	R301	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A
....4	R304	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A
....4	R305	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A
....4	R308	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A
....4	R315	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A
....4	R323	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A
....4	R324	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A
....4	R210	2007-000092	R-CHIP;15Kohm,5%,1/10W,TP,1608	1	S.A
....4	R211	2007-000092	R-CHIP;15Kohm,5%,1/10W,TP,1608	1	S.A
....4	R214	2007-000092	R-CHIP;15Kohm,5%,1/10W,TP,1608	1	S.A
....4	R302	2007-000102	R-CHIP;100Kohm,5%,1/10W,TP,1608	1	S.A
....4	R303	2007-000124	R-CHIP;2.2Kohm,5%,1/10W,TP,1608	1	S.A
....4	R131	2007-000491	R-CHIP;2.2Kohm,1%,1/10W,TP,1608	1	S.A
....4	R132	2007-000491	R-CHIP;2.2Kohm,1%,1/10W,TP,1608	1	S.A
....4	R314	2007-000608	R-CHIP;240ohm,5%,1/10W,TP,1608	1	S.A
....4	R336	2007-000708	R-CHIP;3.9Kohm,1%,1/10W,TP,1608	1	S.A
....4	R337	2007-000965	R-CHIP;5.1Kohm,5%,1/10W,TP,1608	1	S.A
....4	R110	2007-001002	R-CHIP;510ohm,5%,1/10W,TP,1608	1	S.A
....4	R145	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	1	S.A
....4	R146	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	1	S.A
....4	R147	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	1	S.A
....4	R335	2007-007004	R-CHIP;12Kohm,1%,1/10W,TP,1608	1	S.A
....4	C302	2203-000041	C-CER,CHIP;0.01nF,0.25pF,50V,C0G,1608	1	S.A
....4	C303	2203-000041	C-CER,CHIP;0.01nF,0.25pF,50V,C0G,1608	1	S.A
....4	C203	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
....4	C315	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
....4	C321	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
....4	C318	2203-000236	C-CER,CHIP;0.1nF,5%,50V,C0G,1608	1	S.A
....4	C126	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	S.A
....4	C127	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	S.A
....4	C128	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	S.A
....4	C129	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	S.A
....4	C130	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	S.A
....4	C131	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	S.A
....4	C201	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	S.A
....4	C202	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	S.A
....4	C300	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	S.A
....4	C313	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	S.A
....4	C316	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	S.A
....4	C319	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	S.A
....4	C121	2203-000384	C-CER,CHIP;0.015nF,5%,50V,C0G,1608	1	S.A
....4	C103	2203-000440	C-CER,CHIP;1nF,10%,50V,X7R,1608	1	S.A
....4	C122	2203-000626	C-CER,CHIP;0.022nF,5%,50V,C0G,1608	1	S.A
....4	C317	2203-000975	C-CER,CHIP;47nF,10%,25V,X7R,TP,1608,-	1	S.A
....4	C607	2203-001652	C-CER,CHIP;470nF,+80-20%,16V,Y5V,1608	1	S.A
....4	C105	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C106	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C110	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C111	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C112	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C113	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C114	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C115	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A

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....4	C116	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C117	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C118	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C119	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C123	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C210	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C220	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C230	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C307	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C308	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C310	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C322	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C610	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C611	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C615	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C616	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C617	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C618	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C619	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C620	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C622	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C623	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C624	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C625	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C635	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C636	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C638	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C639	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C641	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C642	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C643	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C648	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C649	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C650	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C651	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C652	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C653	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A
....4	C304	2203-005065	C-CER,CHIP;1000nF,+80-20%,10V,Y5V,1608	1	S.A
....4	C305	2203-005065	C-CER,CHIP;1000nF,+80-20%,10V,Y5V,1608	1	S.A
....4	C309	2203-005065	C-CER,CHIP;1000nF,+80-20%,10V,Y5V,1608	1	S.A
....4	C311	2203-005065	C-CER,CHIP;1000nF,+80-20%,10V,Y5V,1608	1	S.A
....4	C312	2203-005065	C-CER,CHIP;1000nF,+80-20%,10V,Y5V,1608	1	S.A
....4	C614	2203-005437	C-CER,CHIP;10000nF,+80-20%,10V,Y5V,3216	1	S.A
....4	C621	2203-005437	C-CER,CHIP;10000nF,+80-20%,10V,Y5V,3216	1	S.A
....4	C634	2203-005437	C-CER,CHIP;10000nF,+80-20%,10V,Y5V,3216	1	S.A
....4	C637	2203-005437	C-CER,CHIP;10000nF,+80-20%,10V,Y5V,3216	1	S.A
....4	C306	2402-001128	C-AL,SMD;100¥iF,20%,16V,-,TP,6.3X5.7mm	1	S.A
....4	C320	2402-001128	C-AL,SMD;100¥iF,20%,16V,-,TP,6.3X5.7mm	1	S.A
....4	C608	2402-001128	C-AL,SMD;100¥iF,20%,16V,-,TP,6.3X5.7mm	1	S.A
....4	C609	2402-001128	C-AL,SMD;100¥iF,20%,16V,-,TP,6.3X5.7mm	1	S.A
....4	C644	2402-001128	C-AL,SMD;100¥iF,20%,16V,-,TP,6.3X5.7mm	1	S.A
....4	X300	2801-003667	CRYSTAL-SMD;14.31818MHz,30ppm,28-AAN,16p	1	S.A
....4	T0568	3301-001145	BEAD-SMD;60ohm,4516,TP,70ohm/45MHz,82ohm	1	S.N.A
....4	T0568	3301-001145	BEAD-SMD;60ohm,4516,TP,70ohm/45MHz,82ohm	1	S.N.A
....4	T0568	3301-001145	BEAD-SMD;60ohm,4516,TP,70ohm/45MHz,82ohm	1	S.N.A
....4	T0568	3301-001145	BEAD-SMD;60ohm,4516,TP,70ohm/45MHz,82ohm	1	S.N.A
....4	T0568	3301-001145	BEAD-SMD;60ohm,4516,TP,70ohm/45MHz,82ohm	1	S.N.A
....4	T0568	3301-001145	BEAD-SMD;60ohm,4516,TP,70ohm/45MHz,82ohm	1	S.N.A
....4	T0568	3301-001145	BEAD-SMD;60ohm,4516,TP,70ohm/45MHz,82ohm	1	S.N.A
....4	CN330	3711-005503	HEADER-BOARD TO CABLE;BOX,9P,1R,2mm,SMD-	1	S.A

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Level	Loc. No.	Code No.	Description & Specification	Q'ty	SA/SNA
....4	CN330	3711-005509	HEADER-BOARD TO CABLE;BOX,4P,1R,1.25mm,S	1	S.A
....4	T0010	BN27-00009A	COIL CHOKE;SMD 12X12X6,EOS,33UH,15%,-,0.	1	S.A
....4	T0077	BN41-00772C	PCB MAIN;DOPPLER,CEM-3,2L,1.2,1.6,118*78	1	S.N.A
....4	MICOM	BN97-01361Z	ASSY MICOM-ATZ,XSF;M-HA20W2BGa-1002,(C56	1	S.N.A
.....5	IC115	1107-001561	IC-FLASH MEMORY;25VF010,128Kx8Bit,SOP,8P	1	S.N.A
....4	C314	2402-001310	C-AL,SMD;100¥ìF,20%,35V,WT,TP,8X10mm	1	S.A
....4	SUB05	0202-001477	SOLDER-CREAM;LST309-M,-,D20~45§-,96.5Sn/	0.15	S.N.A
..2	M0006	BN96-04800A	ASSY SHIELD P-COVER;LS20HAW,SECC T1.0,4L	1	S.N.A
...3		BN61-02428D	STUD-PEM;PNA,M4,D8,L8,ZPC(SIL),SUM24L	4	S.N.A
...3		BN61-02429D	STUD-PEM;PNB,M2.8,D7,L20,ZPC(SIL),SUM24L	1	S.N.A
...3	M0001	BN63-01774A	SHIELD-INSULATOR;BI17/19BS,PET,T0.35	1	S.N.A
...3	M0107	BN63-03156A	SHIELD-COVER;LS20HAW,SECC,T1.0,4LAMP	1	S.N.A
..2	M2893	BN39-00785A	LEAD CONNECTOR;LS19PLMTSQ,UL1007#26,UL/C	1	S.A
0.1	M0113	BN92-01619X	ASSY P/MATERIAL;LS20HAWCBQ/XAA	1	S.N.A
..2	T0376	6902-000061	BAG AIR;LDPE,T0.2,L1000,W500,TRP,,,	0.014	S.N.A
..2	T0376	6902-000379	BAG AIR;LDPE,T0.2,W1000,L1800,TRP,-,--	0.002	S.N.A
..2	T0524	6902-000520	BAG PE;HDPE/NITRON(DOUBLE),T0.015/T0.5(D	1	S.N.A
..2	T0003	6902-000604	BAG WRAPPING;LDPE,T0.02,W500,L10000,TRP,	1.83	S.N.A
..2	M0081	6902-000609	BAG ROLL;LDPE,T0.05,W2400,L1000,TRP,-,-	0.026	S.N.A
0.1	M0003	BN92-01764R	ASSY BOX;LS20HAWCBQ/XSF	1	S.N.A
..2	BOX	BN69-01356C	BOX-04,SET;S/M205BW(LS20HAW),SY-01,A,YEL	1.01	S.N.A
..2	T0081	BN96-02895A	ASSY MISC P-HANDLE PACKING;ALL MODEL,BN6	1	S.N.A
...3	M0103	BN66-00007A	LEVER-TOP;ALL MODEL,LDPE,WHITE	1	S.N.A
...3	M0102	BN66-00008A	LEVER-BOTTOM;ALL MODEL,LDPE,WHITE	1	S.N.A
0.1	M0045	BN92-01792G	ASSY ACCESSORY;LS20HAWCBQ/XSF	1	S.N.A
..2	M0114	BN39-00244B	CBF SIGNAL;MO15PS,15P/15P,20276-N,1830mm	1	S.A
..2	M0125	BN39-00246F	CBF SIGNAL-DVI(D);1703FP,24P/24P,20276-D	1	S.A
..2	M0045	BN96-03465A	ASSY ACCESSORY;LS20HAWCBQ/XSF	1	S.A
...3	T0268	3903-000082	CBF-POWER CORD;DT,CN,IP3/YES(A),I(IEC C1	1	S.A
...3	T0524	6902-000110	BAG PE;LDPE,T0.05,W250,L400,TRP,28,2	1	S.N.A
...3	M0113	BH68-70455A	CARD-TESTED GOODS;ALL (CHINA),SAMAUNG,CH	1	S.N.A
...3	ACCESSORY	BH75-00146B	UNIT-10,WARRANTY;CHINA,-,ASS'Y-W/CARD,BH	1	S.N.A
....4		BH68-00297E	MANUAL FLYER-10,WARRANTY CARD;SAMSUNG BA	1	S.N.A
....4	CIS	BH68-00297F	MANUAL FLYER-10,WARRANTY CARD;ENVELOPE,S	1	S.N.A
...3	M0215	BN96-03059C	ASSY MANUAL P-IB+QSG;203BW,SyncMaster,W/	1	S.N.A
....4	QSG	BH68-00376L	MANUAL FLYER-06,QSG;LCDQUICK SETUP GUIDE	1	S.N.A
....4	T0081	BN59-00509C	S/W DRIVER-06,IB;203BW,W/W,SyncMaster,Ha	1	S.N.A
...3	ACCESSORY	BN68-01237A	MANUAL FLYER-QSG;COMM,W/W(L12),Mojo 100g	1	S.N.A
...3	ACCESSORY	BN68-01118B	MANUAL-01,TCO03 CARD;COMM,W/W,Mojo 100g,	1	S.N.A
0.1		BN91-01303M	ASSY LCD-ATZ;LS20HAWCSZ*,4LAMP	1	S.N.A
..2	M0215	BN07-00402A	LCD-PANEL;M201EW02 V8,Doppler,6bit Hi-FR	1	S.A
0.1	M0019	BN92-02921N	ASSY LABEL;LS20HAWCBQ/XSF	1	S.N.A
..2	LABEL	BN68-00761F	MANUAL-02,QSG;Protection Sheet,SyncMaste	1	S.N.A

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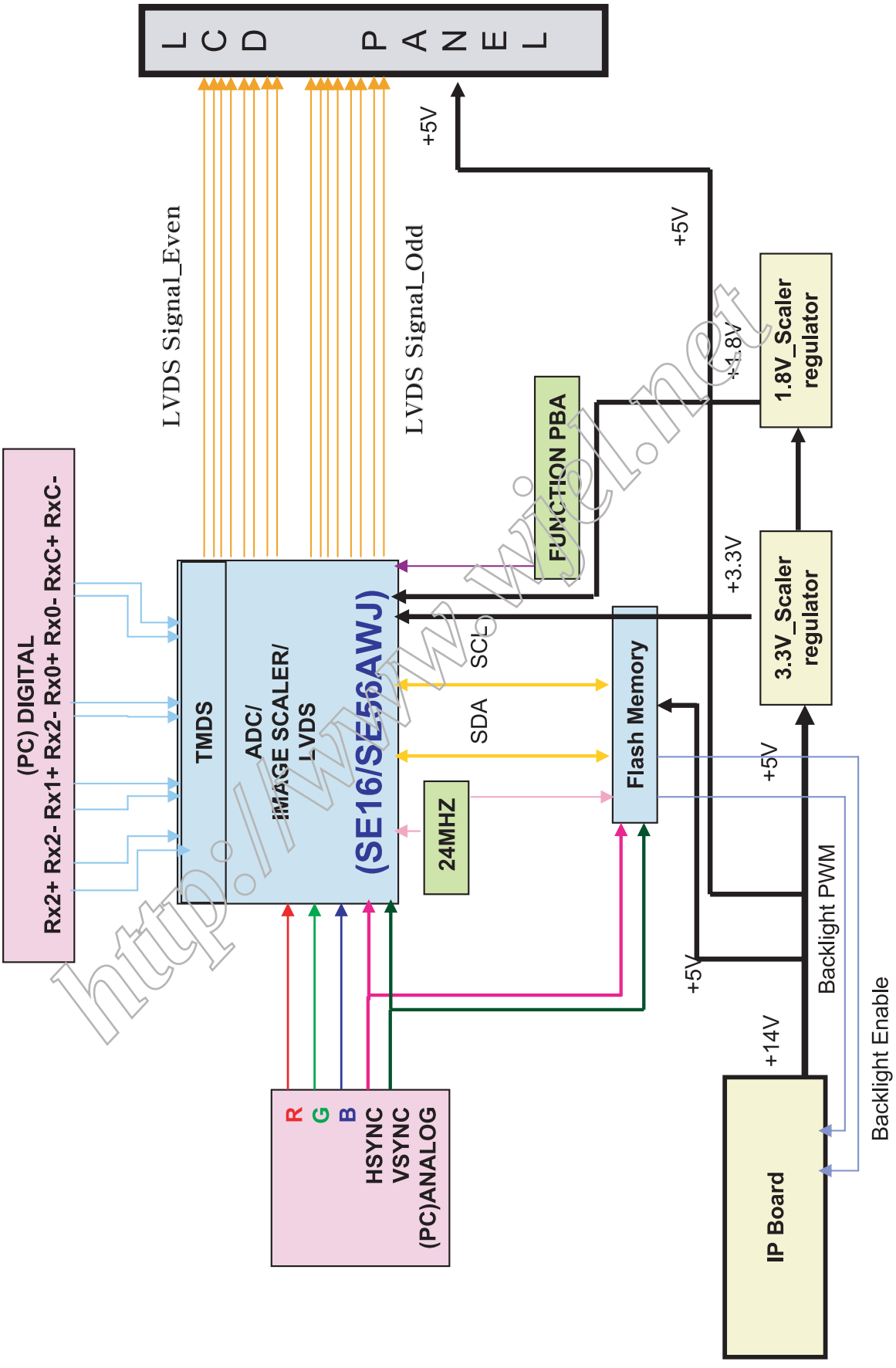
7 Block Diagram

Block Diagram



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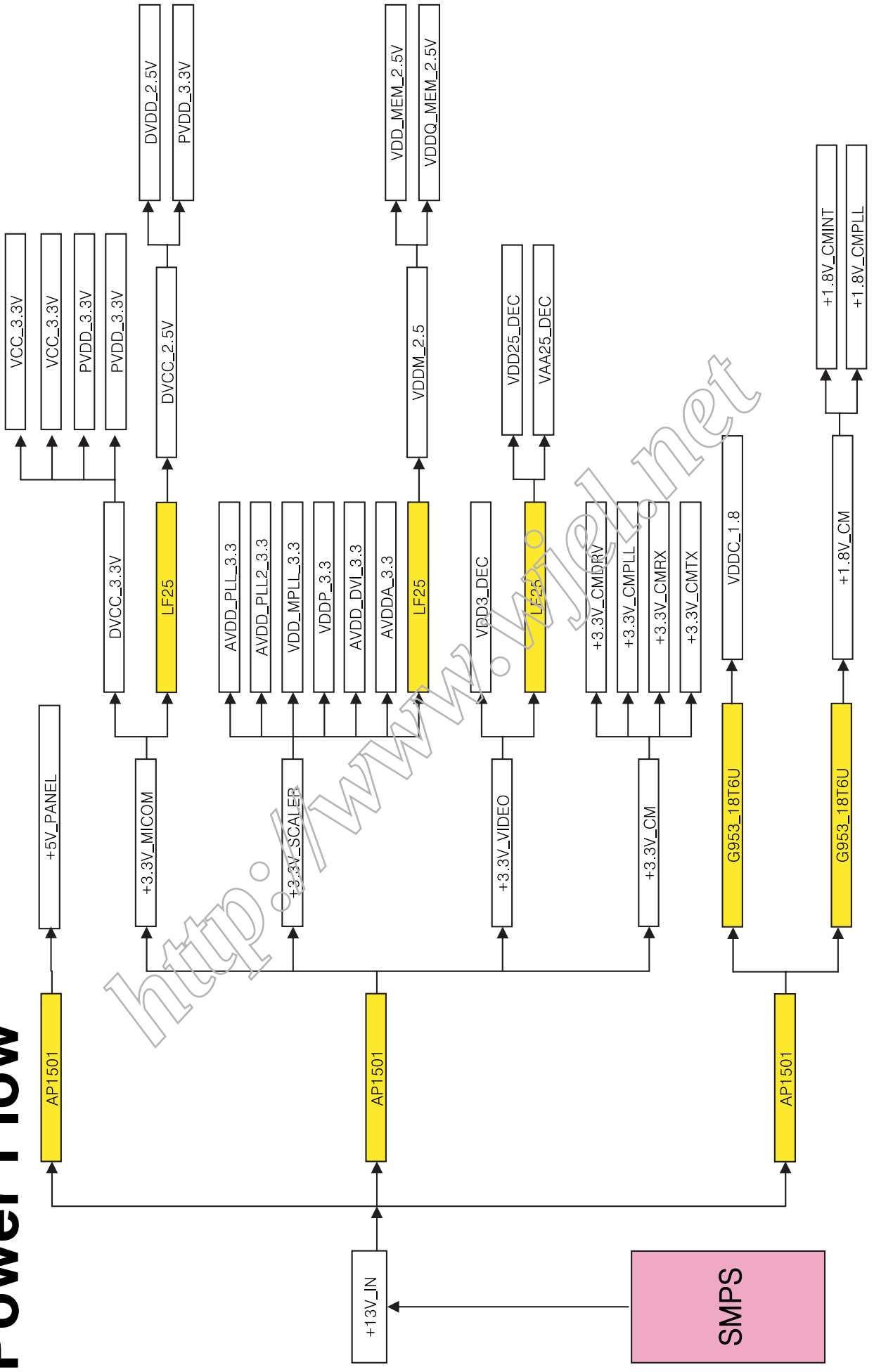
Power Flow



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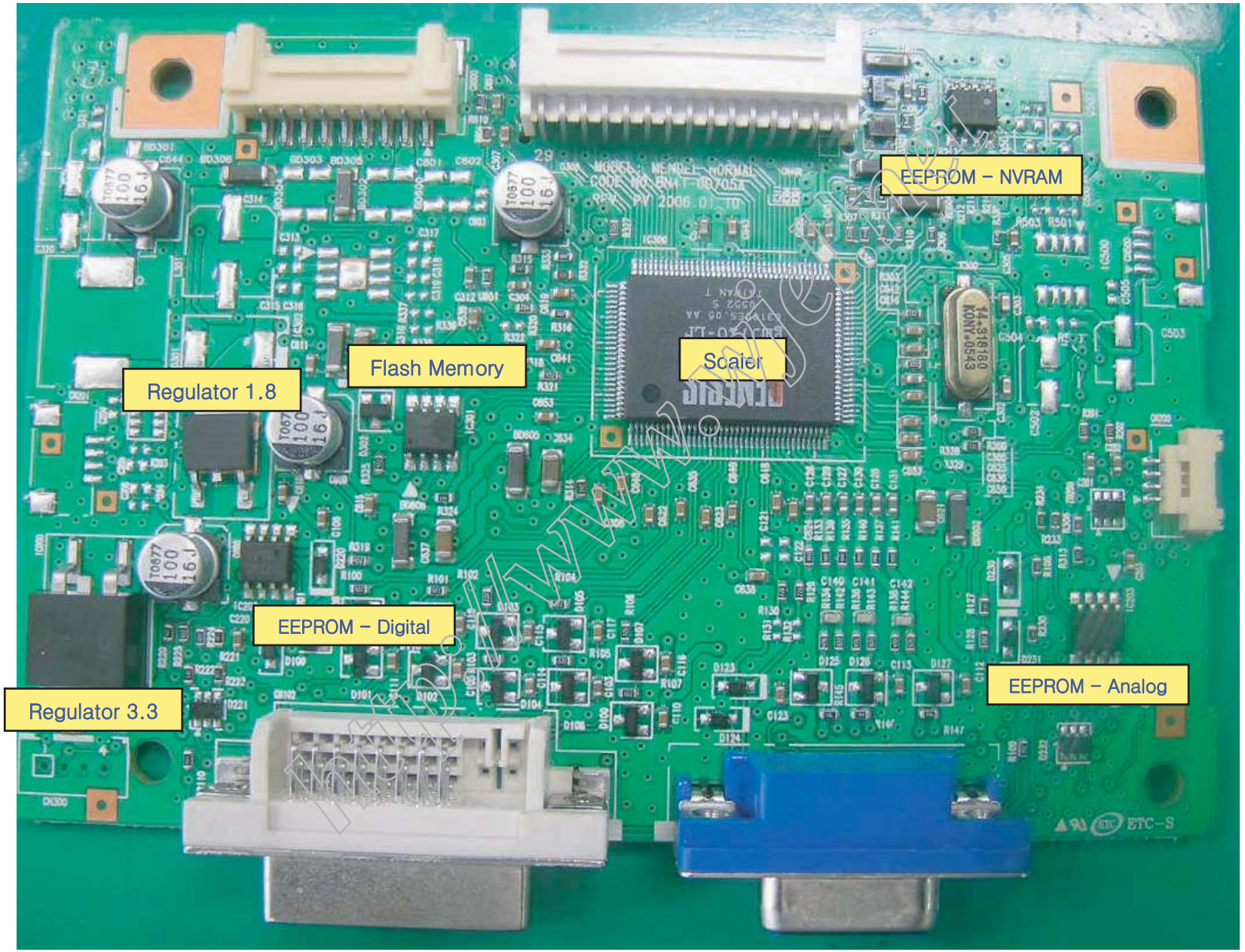
12 PCB Diagram



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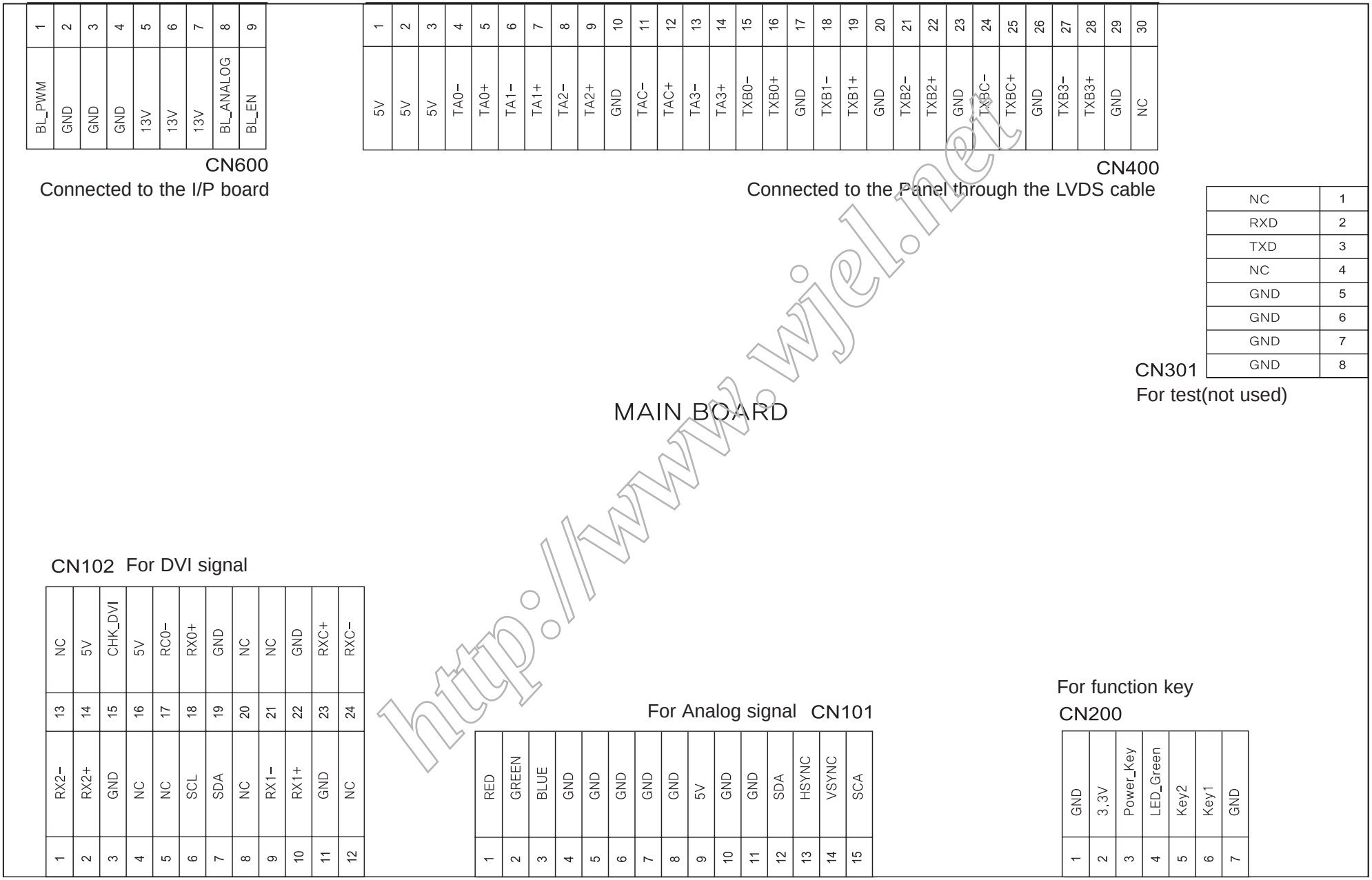
8 Wiring Diagram



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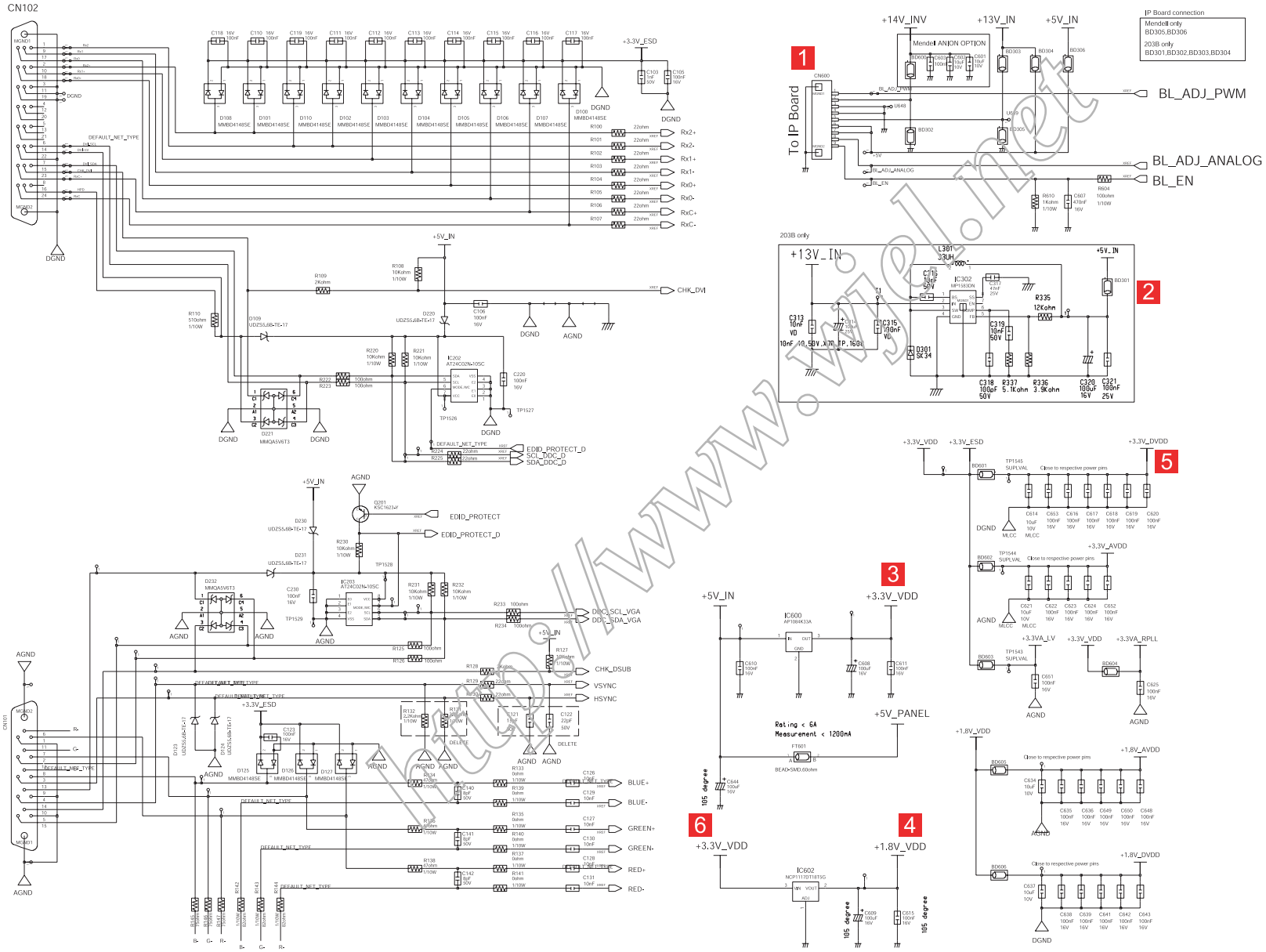
9 Schematic Diagrams

- This Document can not be used without Samsung s authorization.

9-1 Schematic Diagrams(1)



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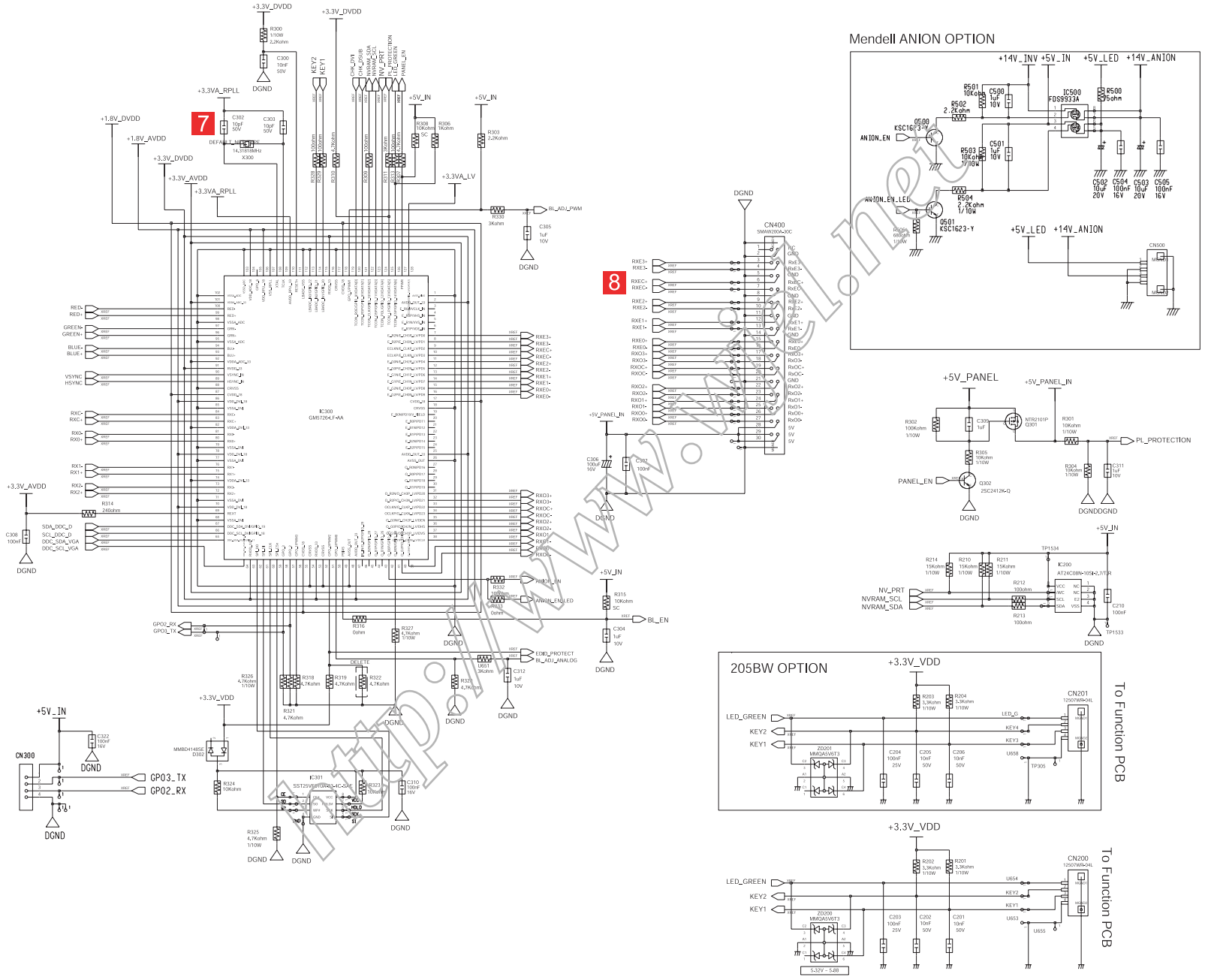
9-2 Schematic Diagrams(2)



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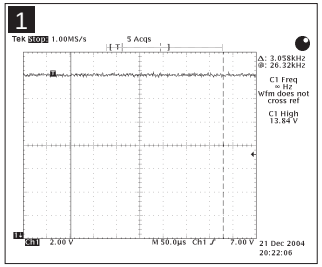

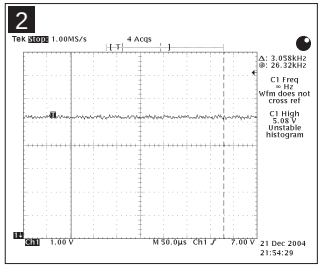

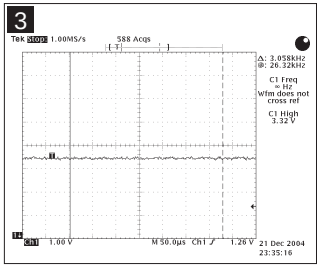

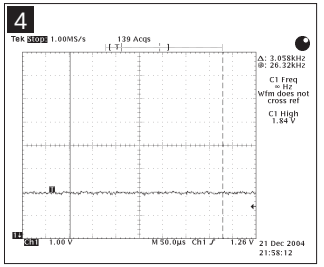

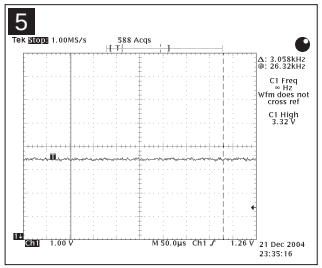

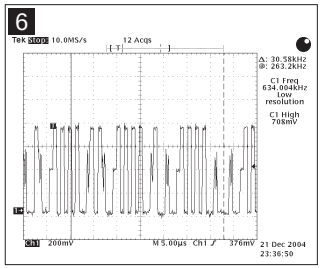

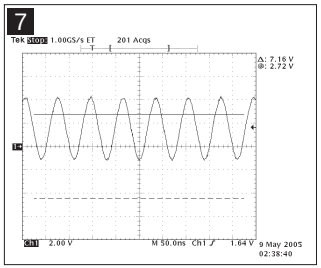

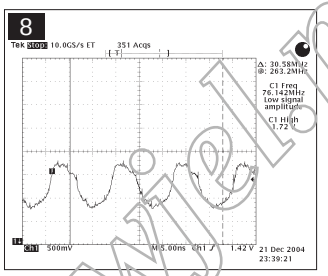

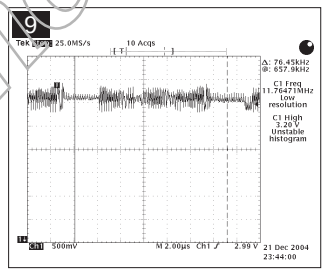

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